

Reset TM Encoder
 File: H_CRP_TTC_ENCR.xls
 Author: E. Picallo



Procedure Summary

Objectives

This procedure describes the steps needed to reset the selected TM Encoder.

Summary of Constraints

The TM encoder is reset through ASW TC(8,4,115,19) thus the status of the ASW function "TTC Management" has to be running. TC(8,4,115,19) performs a soft reset of the TM encoder, immediately restarting the frame generator. Any remaining packets in the TME input buffers will be lost. If there is an ongoing transfert to a VC input buffer on the specified board when this operation is called, a leading corrupt packet on that VC may occur. Both real time TM and TM downlinked from MM may be lost/corrupted in that way. No BSW internal queue are affected.

Spacecraft Configuration

Start of Procedure

End of Procedure

TM Encoder A/B reset

Reference File(s)

Input Command Sequences

Output Command Sequences

HRRENCR1
 HRRENCR2
 HRRENCR3

Referenced Displays

ANDs	GRDs	SLDs
ZAZ7M999		(None)
ZAZ7J999		

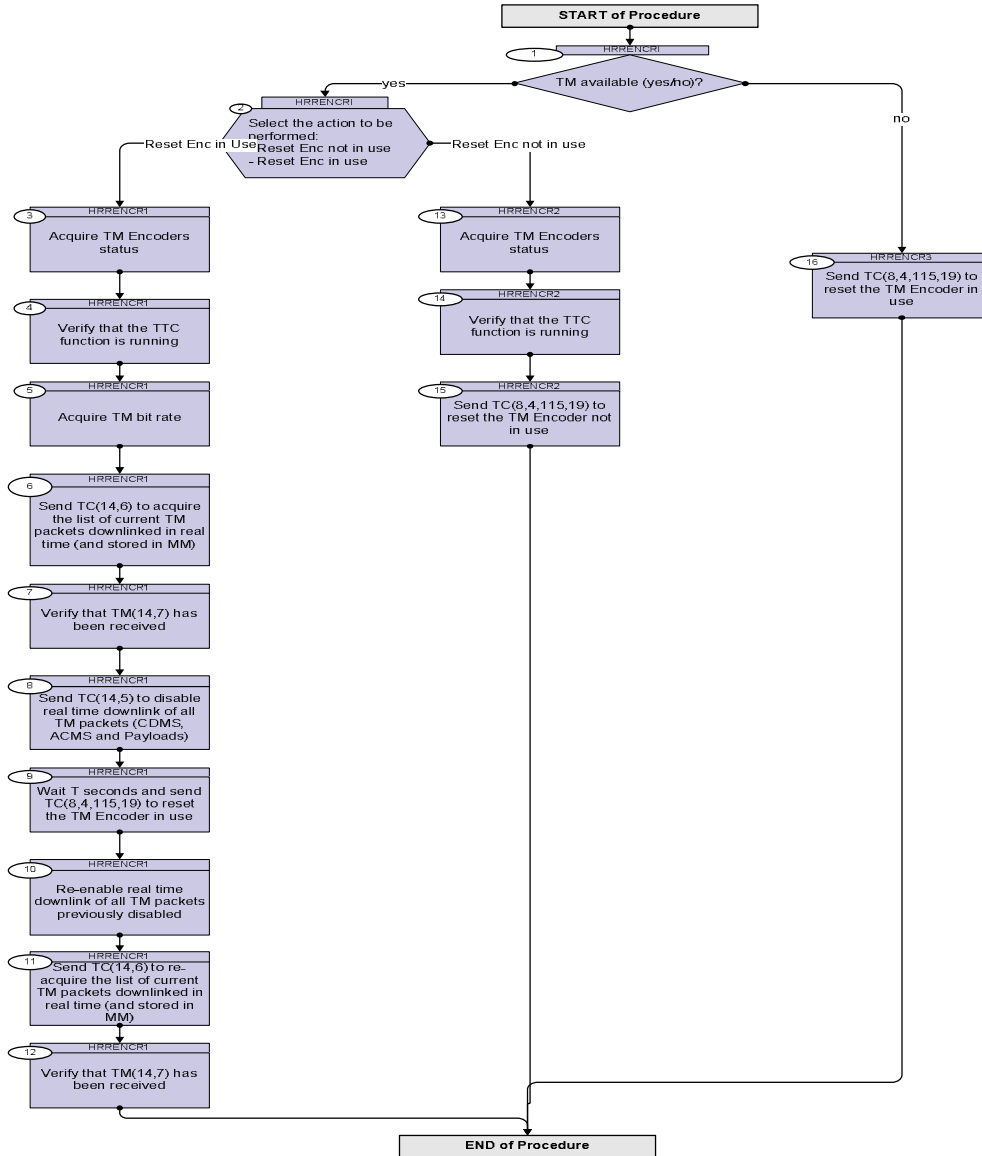
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
30/07/08		1	Created	E. Picallo	
30/07/08	1	2	sequence name correction	E. Picallo	
15/12/08	2	3	TC DC140160 SelDownlinkTMStorage Tx/Storage flags	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				
<p><i>TC Seq. Name :HRRENCRI (Reset TM Enc Initial)</i></p> <p><i>TimeTag Type: N</i> <i>Sub Schedule ID:</i></p> <p style="text-align: center;"><input type="checkbox"/></p>				
1		TM available (yes/no)?		Next Step: yes 2 no 16
2		<p>Select the action to be performed:</p> <ul style="list-style-type: none"> - Reset Enc not in use - Reset Enc in use 		Next Step: Reset Enc in Use 3 Reset Enc not in use 13
<p><i>TC Seq. Name :HRRENCRI (Reset TM Enc use)</i> Reset TM Encoder in use in case telemetry is available</p> <p><i>TimeTag Type: N</i> <i>Sub Schedule ID:</i></p> <p style="text-align: center;"><input type="checkbox"/></p>				
3		Acquire TM Encoders status		Next Step: 4
		Verify Telemetry Ttr1FuncSts DEL10170		AND=ZAZ7M999
		Verify Telemetry Ttr1LogSts DEL11170		AND=ZAZ7M999
		Verify Telemetry Ttr1Use DEL12170		AND=ZAZ7M999
		Verify Telemetry Ttr1FailSts DEL09170		AND=ZAZ7M999
		Verify Telemetry Ttr2FuncSts DEL14170		AND=ZAZ7M999
		Verify Telemetry Ttr2LogSts DEL15170		AND=ZAZ7M999
		Verify Telemetry Ttr2Use DEL16170		AND=ZAZ7M999
		Verify Telemetry Ttr2FailSts DEL13170		AND=ZAZ7M999
4		Verify that the TTC function is running		Next Step: 5

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry TtcSts DEL08170	= Running	
5		Acquire TM bit rate		Next Step: 6
		Verify Telemetry TME_BITRATE DEMRF160		AND=ZAZ7J999
6		Send TC(14,6) to acquire the list of current TM packets downlinked in real time (and stored in MM)		Next Step: 7
		When CDMU receives this request, the real time down-linking and SSMM storage status are determined for all telemetry packet {Application ID, Type, Sub-Type} and a report (14,7) is generated.		
		Execute Telecommand RepDownlinkTMStorage TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Report Telemetry Packets Down-linking/ Storage Status	DC141160	
7		Verify that TM(14,7) has been received		Next Step: 8
		Verify Packet Reception Telemetry Packets DownLinking-Storage Status Report Packet Details: APID: 16 Type: 14 Subtype: 7 PI1: PI2:	(14,7)-1400	
		Verify Packet Telemetry N DE042160		(None)
		The following parameters are repeated N times		
		Verify Packet Telemetry APID DE047160		(None)
		Verify Packet Telemetry Type DE043160		(None)
		Verify Packet Telemetry Sub-Type DE046160		(None)
		Verify Packet Telemetry Transmit_Flag DE048160		(None)

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch																										
		Verify Packet Telemetry Storage_Flag DE049160		(None)																										
8		Send TC(14,5) to disable real time downlink of all TM packets (CDMS, ACMS and Payloads)		Next Step: 9																										
		When CDMU receives this request, the dedicated parameters update and Real Time down-linking and/or SSMM storage shall be performed according to received flags.																												
		WARNING: It is assumed that all TM packets downlinked are also stored in MMs (in dedicated packet stores), thus the "Storage flag" must not be modified. In this case it is necessary to disable only the downlink of all TM packets (CDMS, ACMS and Payloads) by setting the KeepTransit flag to 'Update'. The Storage flag is left unchanged by setting the KeepStorage flag to 'Keep'.																												
		Execute Telecommand SelDownlinkTMStorage Command Parameter(s) : <table style="margin-left: 40px;"> <tr><td>N</td><td>DH019160</td><td>1 <dec> (Def)</td></tr> <tr><td>Application_ID</td><td>DH058160</td><td>0 <dec></td></tr> <tr><td>Type</td><td>DH020160</td><td>0 <dec></td></tr> <tr><td>Sub-Type</td><td>DH021160</td><td>0 <dec></td></tr> <tr><td>Keep_Transmit</td><td>DH070160</td><td>Update</td></tr> <tr><td>Transmit_Flag</td><td>DH059160</td><td>DISABLED</td></tr> <tr><td>Keep_Storage</td><td>DH071160</td><td>Keep</td></tr> <tr><td>Storage_Flag</td><td>DH060160</td><td>ENABLED</td></tr> </table> TC Control Flags : <table style="margin-left: 40px;"> <tr><td>GBM IL DSE</td></tr> <tr><td>---Y ---</td></tr> </table> Subsch. ID : 10 Det. descr. : Select Down-linking/ Storage of Telemetry Packets	N	DH019160	1 <dec> (Def)	Application_ID	DH058160	0 <dec>	Type	DH020160	0 <dec>	Sub-Type	DH021160	0 <dec>	Keep_Transmit	DH070160	Update	Transmit_Flag	DH059160	DISABLED	Keep_Storage	DH071160	Keep	Storage_Flag	DH060160	ENABLED	GBM IL DSE	---Y ---	DC140160	
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---Y ---																														
9		Wait T seconds and send TC(8,4,115,19) to reset the TM Encoder in use		Next Step: 10																										

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Time necessary to downlink one frame for each VCs plus the ongoing frame, i.e. at least:</p> $T = \frac{(\text{NumOfVCs} + 1) \times \text{BitsInTMFrame}}{\text{TMBitRate}}$ <p>Where:</p> <ul style="list-style-type: none"> - NumOfVCs = number of virtual chanel used (VC0/1/2/3/4); - BitsInTMFrame = 32+8920+1280 (Synch marker+Data field+Reed Solomon trailer) - TMBitRate = 500 bps/5 kbps/150 kbps/1.5 Mbps. <p>In the worst case, TMBitRate = 500 bps, T = 123 s.</p>		
		<p>Execute Telecommand</p> <p style="text-align: right;">TtcResetTmEnc_Templ</p> <p>Command Parameter(s) :</p> <p style="text-align: right;">TmEncoderId DH033170</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- --</p> <p>Subsch. ID : 10 Det. descr. : TEMPLATE TTC: Reset TM Encoder, TC(8,4,115,19)</p>	<p>DCT20170</p> <p>TmEncInUseLog</p>	
10		<p><i>Re-enable real time downlink of all TM packets previously disabled</i></p>		Next Step: 11
		<p>Execute ONE of the following procedures according to the current telemetry bit rate:</p> <ul style="list-style-type: none"> - If Low 1 or Low 2 then execute H_CRP_DHS_1001 (Disabling transmission for non essential APIDs) - If MR/HR the execute H_FCP_DHS_1003 (Nominal TRANSMIT/STORAGE settings) 		
		<p>Execute Procedure: H_CRP_DHS_1001 Disabling transmission for non essential APIDs.</p>		
		<p>OR Execute Procedure: H_FCP_DHS_1003 Nominal TRANSMIT/STORAGE settings</p>		
11		<p><i>Send TC(14,6) to re-acquire the list of current TM packets downlinked in real time (and stored in MM)</i></p>		Next Step: 12

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		When CDMU receives this request, the real time down-linking and SSMM storage status are determined for all telemetry packet {Application ID, Type, Sub-Type} and a report (14,7) is generated.		
		Execute Telecommand <p style="text-align: right;">RepDownlinkTMStorage</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : Report Telemetry Packets Down-linking/ Storage Status	DC141160	
12		Verify that TM(14,7) has been received		Next Step: END
		Verify Packet Reception Telemetry Packets DownLinking-Storage Status Report Packet Details: <p style="text-align: right;">APID: 16 Type: 14 Subtype: 7 PI1: PI2:</p>	(14,7)-1400	
		Verify Packet Telemetry <p style="text-align: right;">N DE042160</p>		
		The following parameters are repeated N times		
		Verify Packet Telemetry <p style="text-align: right;">APID DE047160</p>		
		Verify Packet Telemetry <p style="text-align: right;">Type DE043160</p>		
		Verify Packet Telemetry <p style="text-align: right;">Sub-Type DE046160</p>		
		Verify Packet Telemetry <p style="text-align: right;">Transmit_Flag DE048160</p>		
		Verify Packet Telemetry <p style="text-align: right;">Storage_Flag DE049160</p>		
TC Seq. Name : HRRENCR2 (Reset TM Enc notused) Reset TM Encoder not in use in case telemetry is available TimeTag Type: N Sub Schedule ID: Formal Parameter List : TmEncoderId EncNoUse=				
13		Acquire TM Encoders status		Next Step: 14

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry Ttr1FuncSts DEL10170		AND=ZAZ7M999
		Verify Telemetry Ttr1LogSts DEL11170		AND=ZAZ7M999
		Verify Telemetry Ttr1Use DEL12170		AND=ZAZ7M999
		Verify Telemetry Ttr1FailSts DEL09170		AND=ZAZ7M999
		Verify Telemetry Ttr2FuncSts DEL14170		AND=ZAZ7M999
		Verify Telemetry Ttr2LogSts DEL15170		AND=ZAZ7M999
		Verify Telemetry Ttr2Use DEL16170		AND=ZAZ7M999
		Verify Telemetry Ttr2FailSts DEL13170		AND=ZAZ7M999
14		Verify that the TTC function is running		Next Step: 15
		TtcSts DEL08170	= Running	
15		Send TC(8,4,115,19) to reset the TM Encoder not in use		Next Step: END
		Set in the formal prameter passed to the sequence the TmEncoder ID of the encoder that is <u>NOT</u> currently in use.		
		Execute Telecommand TtcResetTmEnc_Templ Command Parameter(s) : TmEncoderId DH033170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE TTC: Reset TM Encoder, TC(8,4,115,19)	DCT20170 EncNoUse	
<p>TC Seq. Name :HRRENCR3 (Reset TM Enc NO TLM) Reset TM Encoder in case of no Telemetry available</p> <p>TimeTag Type: N Sub Schedule ID: <input type="checkbox"/></p>				

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
16		Send TC(8,4,115,19) to reset the TM Encoder in use		Next Step: END
		Execute Telecommand <p style="text-align: right;">TtcResetTmEnc_Templ</p> Command Parameter(s) : <p style="text-align: right;">TmEncoderId DH033170</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- --</p> Subsch. ID : 10 Det. descr. : TEMPLATE TTC: Reset TM Encoder, TC(8,4,115,19)	<p style="text-align: center;">DCT20170</p> <p style="text-align: center;">TmEncInUseLog</p>	
End of Procedure				