

Recovery after XPND RT Error Flags on 1553 S/C bus
 File: H_CRP_TTC_RTER.xls
 Author: E. Picallo



Procedure Summary

Objectives

This procedure describes the steps needed to detect and recover from XPND RT communication errors (flags set on 1553 S/C bus)

Summary of Constraints

The S/C bus DLL FDIR algorithm does not check the following error bits, so they should be verified by Ground in order to detect the related failures and perform the necessary recovery:

- RT message error bit
- RT busy bit
- RT terminal flag bit

Note that XPNDs assert the subsystem error flag while TM acquisitions are being performed.

Spacecraft Configuration

Start of Procedure

CDMU default configuration;

End of Procedure

CDMU default configuration;

Reference File(s)

Input Command Sequences

Output Command Sequences

Referenced Displays

ANDs	GRDs	SLDs
ZAZ7I999		(None)

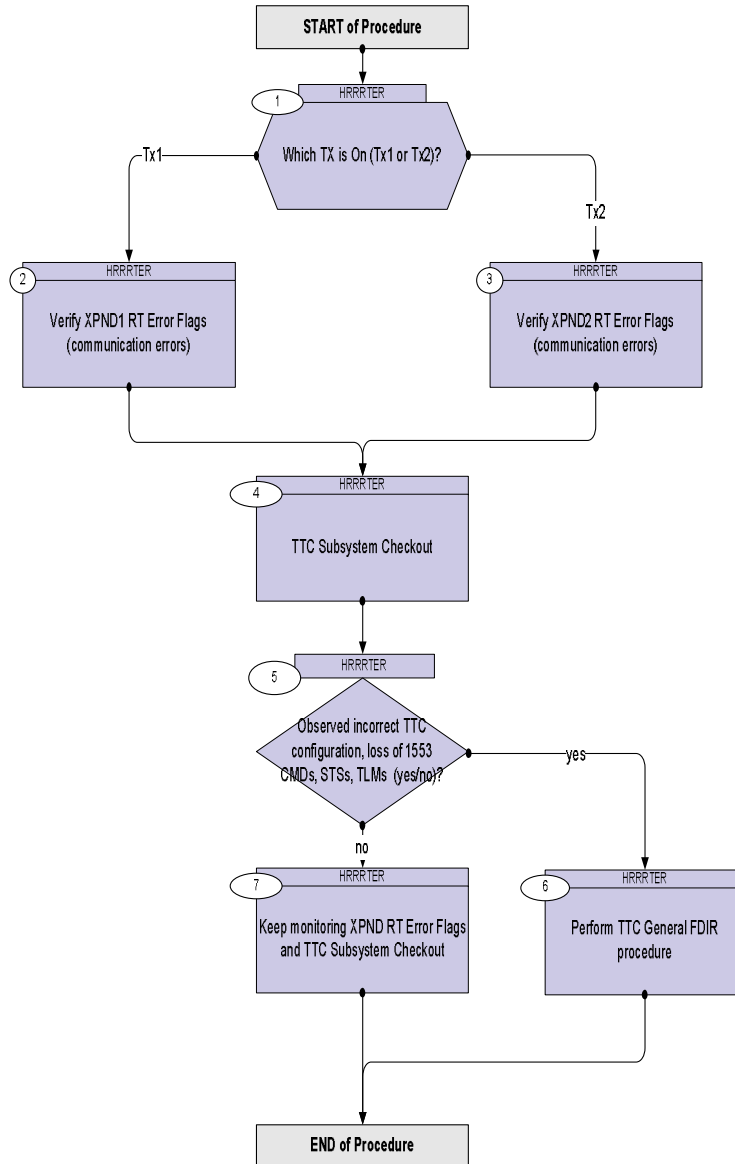
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
23/03/09	2.2	1	Created	E. Picallo	
18/04/09	2.3	2	procedure title typo correction	E. Picallo	
25/09/09	2.5	3	Check if Tx1 based on TX1 ON/OFF Status Check if Tx2 based on TX2 ON/OFF Status	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 :HRRRTER (XPND RT Error Flags) Recovery after XPND RT Error Flags on 1553 S/C bus TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
1		Which TX is On (Tx1 or Tx2)?		Next Step: Tx1 2 Tx2 3
1.1		Check if TX1 status ON		<input type="checkbox"/>
		Verify Telemetry TX1 ON-OFF Stat RMB15442	= ON	AND=ZAZ7I999
		Verify Telemetry XPND1On_Off DEFCG160	= ON	AND=ZAZ7I999
		Verify Telemetry XPND1Val_Inval DEFCK160	= Valid	AND=ZAZ7I999
1.2		Check if TX2 status ON		<input type="checkbox"/>
		Verify Telemetry TX2 ON-OFF Stat RMB16442	= ON	AND=ZAZ7I999
		Verify Telemetry XPND2On_Off DEFD1160	= ON	AND=ZAZ7I999
		Verify Telemetry XPND2Val_Inval DEFD5160	= Valid	AND=ZAZ7I999
2		Verify XPND1 RT Error Flags (communication errors)		Next Step: 4
		<p>The XPND RT reports the following error flags in the Response Status Words via 1553 bus:</p> <ul style="list-style-type: none"> - RT message error bit: set by the RT upon detection of an error in the message or an illegal message identification. - RT busy bit: indicates that the RT or subsystem is unable to move data to or from the subsystem in compliance with the BC command. - RT terminal flag bit: indicates a RT fault condition. <p>These RT error bits are not supported by DLL FDIR mechanisms. Thus, if a permanent error is reported on one of these bits, this could indicate a failure in the XPND.</p> <p>Note: The XPND assert the subsystem error flag while TM acquisitions are being performed.</p>		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>The following DIDs are available for XPND1:</p> <p>DID_XPND_1_SA11_RSP_STS_WORD DID_XPND_1_SA30_RSP_STS_WORD</p>		
		<p>The value of the error bits is kept in all the above mentioned DIDs. In case of <u>permanent failures</u> this means that, for example, if DID_XPND_1_SA11_RSP_STS_WORD is indicating a RT message error condition, the same error will be reported in all the other DIDs for response status words.</p> <p>Then, it is enough to check only one of these Status Words. The parameters below correspond to: DID_XPND_1_SA11_RSP_STS_WORD</p>		
		<p>Verify Telemetry</p> <p style="text-align: center;">MsgErr DEYR2161</p>		(None)
		<p>Verify Telemetry</p> <p style="text-align: center;">Busy DEYR6161</p>		(None)
		<p>Verify Telemetry</p> <p style="text-align: center;">SubSys DEYR7161</p>	= 1 <dec>	(None)
		<p>Verify Telemetry</p> <p style="text-align: center;">Term DEYR9161</p>		(None)
3		<p>Verify XPND2 RT Error Flags (communication errors)</p>		Next Step: 4
		<p>The XPND RT reports the following error flags in the Response Status Words via 1553 bus:</p> <ul style="list-style-type: none"> - RT message error bit: set by the RT upon detection of an error in the message or an illegal message identification. - RT busy bit: indicates that the RT or subsystem is unable to move data to or from the subsystem in compliance with the BC command. - RT terminal flag bit: indicates a RT fault condition. <p>These RT error bits are not supported by DLL FDIR mechanisms. Thus, if a permanent error is reported on one of these bits, this could indicate a failure in the XPND.</p> <p>Note: The XPND assert the subsystem error flag while TM acquisitions are being performed.</p>		
		<p>The following DIDs are available for XPND2:</p> <p>DID_XPND_2_SA11_RSP_STS_WORD DID_XPND_2_SA30_RSP_STS_WORD</p>		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>The value of the error bits is kept in all the above mentioned DIDs. In case of <u>permanent failures</u> this means that, for example, if DID_XPND_2_SA11_RSP_STS_WORD is indicating a RT message error condition, the same error will be reported in all the other DIDs for response status words.</p> <p>Then, it is enough to check only one of these Status Words. The parameters below correspond to: DID_XPND_2_SA11_RSP_STS_WORD</p>		
		Verify Telemetry <p style="text-align: center;">MsgErr DEYT2161</p>		(None)
		Verify Telemetry <p style="text-align: center;">Busy DEYT6161</p>		(None)
		Verify Telemetry <p style="text-align: center;">SubSys DEYT7161</p>	= 1 <dec>	(None)
		Verify Telemetry <p style="text-align: center;">Term DEYT9161</p>		(None)
4		TTC Subsystem Checkout		Next Step: 5
		Execute Procedure: H_FCP_TTC_CHECK TTC Subsystem Checkout		
5		Observed incorrect TTC configuration, loss of 1553 CMDs, STSs, TLMs (yes/no)?		Next Step: yes 6 no 7
6		Perform TTC General FDIR procedure		Next Step: END
		<p>Call to procedure H_CRP_TTC_FDIR (Trigger TTC FDIR Level 1 Recovery).</p> <p>Select the sequence HRRFDIR3 to trigger TTC FDIR recovery from chain in_use to no_in_use i.e. Send TC DCN33170 (FdirTtcUnitFail).</p>		
		Execute Procedure: H_CRP_TTC_FDIR Trigger TTC FDIR Level 1 Recovery		
7		Keep monitoring XPND RT Error Flags and TTC Subsystem Checkout		Next Step: END

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Go to step 1 of the procedure		
End of Procedure				