

Configuration check after RFDN SWS failure
File: H_CRP_TTC_SWR.xls
Author: E. Picallo



Procedure Summary

Objectives

This procedure describes the steps needed to check the RFDN SWS configuration after the recovery performed on-board by the ASW in case of an unexpected SW position.

Summary of Constraints

Monitoring of these failures is performed by the FDIR Cross Correlated Table (FCCT) acquiring the "SW x position A" and "SW x position B" monitors.

Output of the FCCT is compared against the expected value in the Monitoring Table (MOT) and in case the check is failed, one of the following events is raised:

- Event ID Ox9200/Ox9201 (RFDN SW1 commanded in position B/A failed);
- Event ID Ox9202/Ox9203 (RFDN SW2 commanded in position B/A failed);
- Event ID Ox9204/Ox9205 (RFDN SW3 commanded in position B/A failed);
- Event ID Ox9206/Ox9207 (RFDN SW4 commanded in position B/A failed);

Following these events, the ASW, through the Event-Action Table (EAT), commands the "redundant" SW in order to reach the expected antenna configuration and marks the "nominal" SW as failed in Unit In Use (UIU) table.

It is recalled that the RFDN SWS are used in pairs; one pair is SW1 and SW2 the other one is SW3 and SW4.

Spacecraft Configuration

Start of Procedure

CDMU in default configuration.
Nominal SW marked "failed" and "not in use" in UIU table.
Redundant SW marked "not failed" and "in use" in UIU table.
Four RFDN SWS MOT entries enabled according to SWS positions
Failed RFDN SW pair (Nominal and redundant) EAT entries disabled.

End of Procedure

CDMU in default configuration.
Nominal SW marked "failed" and "not in use" in UIU table.
Redundant SW marked "not failed" and "in use" in UIU table.
Four RFDN SWS MOT entries enabled according to SWS positions
Failed RFDN SW pair (Nominal and redundant) EAT entries disabled.

Reference File(s)

Input Command Sequences

Output Command Sequences

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HRRSWR

Referenced Displays

ANDs **GRDs** **SLDs**
 ZAZ7J999
 ZAZ7M999

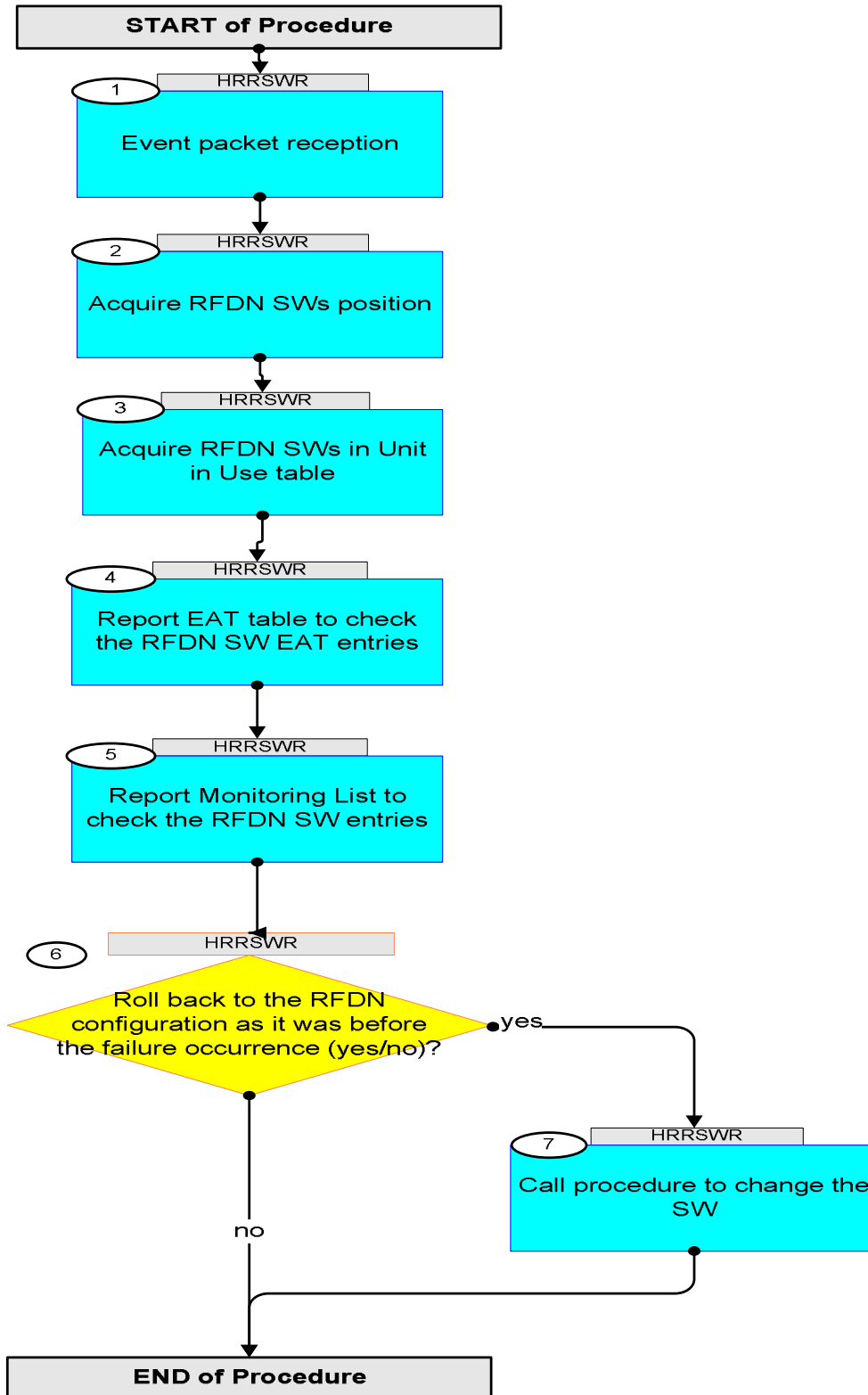
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
30/07/08	1	1	Created	E. Picallo	
01/12/08	2	2	Display mode update	E. Picallo	
20/03/09	2.2	3	Procedure revised according to current FDIR implementation for CDMU ASW v3.8	E. Picallo	

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Procedure Flowchart Overview

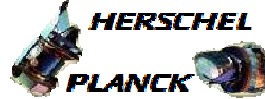


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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch										
Beginning of Procedure														
TC Seq. Name :HRRSWR (RFDN SWS fail check) Configuration check after RFDN SWS failure TimeTag Type: Sub Schedule ID: <input type="checkbox"/>														
1		Event packet reception		Next Step: 2										
1.1		RFDN SW1 Pos B Failure		<input type="checkbox"/>										
		The event RFDNSW1_Not_In_PosB_Fail (ID 0x9200) will be generated if the DID value is not equal to position B (0x0008). The associated monitoring entry , RFDN_SW1_NotInPos_B (ID 9), is enabled when the RFDN SW1 is commanded in Position B.												
		Verify Packet Reception CdmuAsw Event 5-2 Evt_Mot_Exc_Id_0x9200 Packet Details: <table style="margin-left: 20px;"> <tr><td>APID:</td><td>16</td></tr> <tr><td>Type:</td><td>5</td></tr> <tr><td>Subtype:</td><td>2</td></tr> <tr><td>PI1:</td><td>37376</td></tr> <tr><td>PI2:</td><td>0</td></tr> </table>	APID:	16	Type:	5	Subtype:	2	PI1:	37376	PI2:	0	D_EvRpMo9200	
APID:	16													
Type:	5													
Subtype:	2													
PI1:	37376													
PI2:	0													
		Verify Packet Telemetry (Pkt = D_EvRpMo9200) <table style="margin-left: 20px;"> <tr><td>EventId</td><td>DE068170</td><td>= 9200 <hex></td><td>(None)</td></tr> </table>	EventId	DE068170	= 9200 <hex>	(None)								
EventId	DE068170	= 9200 <hex>	(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9200) <table style="margin-left: 20px;"> <tr><td>MonitorId</td><td>DE055170</td><td>= 9 <dec></td><td>(None)</td></tr> </table>	MonitorId	DE055170	= 9 <dec>	(None)								
MonitorId	DE055170	= 9 <dec>	(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9200) <table style="margin-left: 20px;"> <tr><td>FirstMaskParVal</td><td>DE070170</td><td></td><td>(None)</td></tr> </table>	FirstMaskParVal	DE070170		(None)								
FirstMaskParVal	DE070170		(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9200) <table style="margin-left: 20px;"> <tr><td>RepThMaskParVal</td><td>DE071170</td><td></td><td>(None)</td></tr> </table>	RepThMaskParVal	DE071170		(None)								
RepThMaskParVal	DE071170		(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9200) <table style="margin-left: 20px;"> <tr><td>CheckValue</td><td>DE059170</td><td>= 0008 <dec></td><td>(None)</td></tr> </table>	CheckValue	DE059170	= 0008 <dec>	(None)								
CheckValue	DE059170	= 0008 <dec>	(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9200) <table style="margin-left: 20px;"> <tr><td>EventSeqCounter</td><td>DE069170</td><td></td><td>(None)</td></tr> </table>	EventSeqCounter	DE069170		(None)								
EventSeqCounter	DE069170		(None)											
1.2		RFDN SW1 Pos A Failure		<input type="checkbox"/>										
		The event RFDNSW1_Not_In_PosA_Fail (ID 0x9201) will be generated if the DID value is not equal to position A (0x0004). The associated monitoring entry , RFDN_SW1_NotInPos_A (ID 13), is enabled when the RFDN SW1 is commanded in Position A.												

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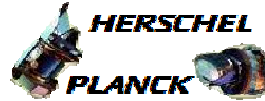
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Reception CdmuAsw Event 5-2 Evt_Mot_Exc_Id_0x9201 Packet Details: APID: 16 Type: 5 Subtype: 2 PI1: 37377 PI2: 0	D_EvRpMo9201	
		Verify Packet Telemetry (Pkt = D_EvRpMo9201) EventId DE068170	= 9201 <hex>	(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9201) MonitorId DE055170	= 13 <dec>	(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9201) FirstMaskParVal DE070170		(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9201) RepThMaskParVal DE071170		(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9201) CheckValue DE059170	= 0004 <hex>	(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9201) EventSeqCounter DE069170		(None)
1.3		RFDN SW2 Pos B Failure		□
		The event RFDNSW2_Not_In_PosB_Fail (ID 0x9202) will be generated if the DID value is not equal to position B (0x0080). The associated monitoring entry , RFDN_SW2_NotInPos_B (ID 10), is enabled when the RFDN SW2 is commanded in Position B.		
		Verify Packet Reception CdmuAsw Event 5-2 Evt_Mot_Exc_Id_0x9202 Packet Details: APID: 16 Type: 5 Subtype: 2 PI1: 37378 PI2: 0	D_EvRpMo9202	
		Verify Packet Telemetry (Pkt = D_EvRpMo9202) EventId DE068170	= 9202 <hex>	(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9202) MonitorId DE055170	= 10 <dec>	(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9202) FirstMaskParVal DE070170		(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9202) RepThMaskParVal DE071170		(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9202) CheckValue DE059170	= 0080 <hex>	(None)

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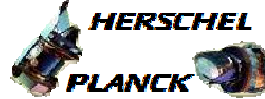
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Telemetry (Pkt = D_EvRpMo9202) EventSeqCounter DE069170		
1.4		RFDN SW2 Pos A Failure		<input type="checkbox"/>
		The event RFDNSW2_Not_In_PosA_Fail (ID 0x9203) will be generated if the DID value is not equal to position A (0x0040). The associated monitoring entry , RFDN_SW2_NotInPos_A (ID 14), is enabled when the RFDN SW2 is commanded in Position A.		
		Verify Packet Reception CdmuAsw Event 5-2 Evt_Mot_Exc_Id_0x9203 Packet Details: APID: 16 Type: 5 Subtype: 2 PI1: 37379 PI2: 0	D_EvRpMo9203	
		Verify Packet Telemetry (Pkt = D_EvRpMo9203) EventId DE068170	= 9203 <hex>	(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9203) MonitorId DE055170	= 14 <dec>	(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9203) FirstMaskParVal DE070170		(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9203) RepThMaskParVal DE071170		(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9203) CheckValue DE059170	= 0040 <hex>	(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9203) EventSeqCounter DE069170		
1.5		RFDN SW3 Pos B Failure		<input type="checkbox"/>
		The event RFDNSW3_Not_In_Pos_B_Fail (ID 0x9204) will be generated if the DID value is not equal to position B (0x0800). The associated monitoring entry , RFDN_SW3_NotInPos_B (ID 11), is enabled when the RFDN SW3 is commanded in Position B.		
		Verify Packet Reception CdmuAsw Event 5-2 Evt_Mot_Exc_Id_0x9204 Packet Details: APID: 16 Type: 5 Subtype: 2 PI1: 37380 PI2: 0	D_EvRpMo9204	

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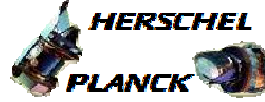
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch										
		<p>The event RFDNSW4_Not_In_PosB_Fail (ID 0x9206) will be generated if the DID value is not equal to position B (0x8000).</p> <p>The associated monitoring entry , RFDN_SW4_NotInPos_B (ID 12), is enabled when the RFDN SW4 is commanded in Position B.</p>												
		Verify Packet Reception CdmuAsw Event 5-2 Evt_Mot_Exc_Id_0x9206 Packet Details: <table style="margin-left: 20px;"> <tr><td>APID:</td><td>16</td></tr> <tr><td>Type:</td><td>5</td></tr> <tr><td>Subtype:</td><td>2</td></tr> <tr><td>PI1:</td><td>37382</td></tr> <tr><td>PI2:</td><td>0</td></tr> </table>	APID:	16	Type:	5	Subtype:	2	PI1:	37382	PI2:	0	D_EvRpMo9206	
APID:	16													
Type:	5													
Subtype:	2													
PI1:	37382													
PI2:	0													
		Verify Packet Telemetry (Pkt = D_EvRpMo9206) <table style="margin-left: 20px;"> <tr><td>EventId</td><td>DE068170</td><td>= 9206 <hex></td><td>(None)</td></tr> </table>	EventId	DE068170	= 9206 <hex>	(None)								
EventId	DE068170	= 9206 <hex>	(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9206) <table style="margin-left: 20px;"> <tr><td>MonitorId</td><td>DE055170</td><td>= 12 <dec></td><td>(None)</td></tr> </table>	MonitorId	DE055170	= 12 <dec>	(None)								
MonitorId	DE055170	= 12 <dec>	(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9206) <table style="margin-left: 20px;"> <tr><td>FirstMaskParVal</td><td>DE070170</td><td></td><td>(None)</td></tr> </table>	FirstMaskParVal	DE070170		(None)								
FirstMaskParVal	DE070170		(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9206) <table style="margin-left: 20px;"> <tr><td>RepThMaskParVal</td><td>DE071170</td><td></td><td>(None)</td></tr> </table>	RepThMaskParVal	DE071170		(None)								
RepThMaskParVal	DE071170		(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9206) <table style="margin-left: 20px;"> <tr><td>CheckValue</td><td>DE059170</td><td>= 8000 <hex></td><td>(None)</td></tr> </table>	CheckValue	DE059170	= 8000 <hex>	(None)								
CheckValue	DE059170	= 8000 <hex>	(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9206) <table style="margin-left: 20px;"> <tr><td>EventSeqCounter</td><td>DE069170</td><td></td><td></td></tr> </table>	EventSeqCounter	DE069170										
EventSeqCounter	DE069170													
1.8		RFDN SW4 Pos A Failure		□										
		<p>The event RFDNSW4_Not_In_PosA_Fail (ID 0x9207) will be generated if the DID value is not equal to position A (0x4000).</p> <p>The associated monitoring entry , RFDN_SW4_NotInPos_A (ID 16), is enabled when the RFDN SW4 is commanded in Position A.</p>												
		Verify Packet Reception CdmuAsw Event 5-2 Evt_Mot_Exc_Id_0x9207 Packet Details: <table style="margin-left: 20px;"> <tr><td>APID:</td><td>16</td></tr> <tr><td>Type:</td><td>5</td></tr> <tr><td>Subtype:</td><td>2</td></tr> <tr><td>PI1:</td><td>37383</td></tr> <tr><td>PI2:</td><td>0</td></tr> </table>	APID:	16	Type:	5	Subtype:	2	PI1:	37383	PI2:	0	D_EvRpMo9207	
APID:	16													
Type:	5													
Subtype:	2													
PI1:	37383													
PI2:	0													
		Verify Packet Telemetry (Pkt = D_EvRpMo9207) <table style="margin-left: 20px;"> <tr><td>EventId</td><td>DE068170</td><td>= 9207 <hex></td><td>(None)</td></tr> </table>	EventId	DE068170	= 9207 <hex>	(None)								
EventId	DE068170	= 9207 <hex>	(None)											
		Verify Packet Telemetry (Pkt = D_EvRpMo9207) <table style="margin-left: 20px;"> <tr><td>MonitorId</td><td>DE055170</td><td>= 16 <dec></td><td>(None)</td></tr> </table>	MonitorId	DE055170	= 16 <dec>	(None)								
MonitorId	DE055170	= 16 <dec>	(None)											

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Telemetry (Pkt = D_EvRpMo9207) FirstMaskParVal DE070170		(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9207) RepThMaskParVal DE071170		(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9207) CheckValue DE059170	= 4000 <hex>	(None)
		Verify Packet Telemetry (Pkt = D_EvRpMo9207) EventSeqCounter DE069170		
2		Acquire RFDN SWs position		Next Step: 3
		Verify RFDN SW1 Position A Telemetry RFDN SW1 Pos A RMB05436		AND=ZAZ7J999
		Verify RFDN SW1 Position B Telemetry RFDN SW1 Pos B RMB09436		AND=ZAZ7J999
		Verify RFDN SW2 Position A Telemetry RFDN SW2 Pos A RMB06436		AND=ZAZ7J999
		Verify RFDN SW2 Position B Telemetry RFDN SW2 Pos B RMB10436		AND=ZAZ7J999
		Verify RFDN SW3 Position A Telemetry RFDN SW3 Pos A RMB07436		AND=ZAZ7J999
		Verify RFDN SW3 Position B Telemetry RFDN SW3 Pos B RMB11436		AND=ZAZ7J999
		Verify RFDN SW4 Position A Telemetry RFDN SW4 Pos A RMB08436		AND=ZAZ7J999
		Verify RFDN SW4 Position B Telemetry RFDN SW4 Pos B RMB12436		AND=ZAZ7J999
3		Acquire RFDN SWs in Unit in Use table		Next Step: 4
		Verify Telemetry Rfdn1FuncSts DEH49170		AND=ZAZ7M999
		Verify Telemetry Rfdn1Use DEH51170		AND=ZAZ7M999
		Verify Telemetry Rfdn1LogSts DEH50170		AND=ZAZ7M999
		Verify Telemetry Rfdn1FailSts DEH48170		AND=ZAZ7M999
		Verify Telemetry Rfdn2FuncSts DEH53170		AND=ZAZ7M999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry Rfdn2Use DEH55170		AND=ZAZ7M999
		Verify Telemetry Rfdn2LogSts DEH54170		AND=ZAZ7M999
		Verify Telemetry Rfdn2FailSts DEH52170		AND=ZAZ7M999
		Verify Telemetry Rfdn3FuncSts DEH57170		AND=ZAZ7M999
		Verify Telemetry Rfdn3Use DEH59170		AND=ZAZ7M999
		Verify Telemetry Rfdn3LogSts DEH58170		AND=ZAZ7M999
		Verify Telemetry Rfdn3FailSts DEH56170		AND=ZAZ7M999
		Verify Telemetry Rfdn4FuncSts DEH61170		AND=ZAZ7M999
		Verify Telemetry Rfdn4Use DEH63170		AND=ZAZ7M999
		Verify Telemetry Rfdn4LogSts DEH62170		AND=ZAZ7M999
		Verify Telemetry Rfdn4FailSts DEH60170		AND=ZAZ7M999
		Verify: - Nominal SW marked "failed" and "not in use" - Redundant SW marked "not failed" and "in use"		
4		Report EAT table to check the RFDN SW EAT entries		Next Step: 5
		Execute Telecommand TC Control Flags : Subsch. ID : 10 Det. descr. : TEMPLATE Report The contents of the event/action table TC(19,6)	ReptEvtActTable DCT86170 GBM IL DSE --Y -- ---	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify the status of the RFDN SWs in EAT: - If SW1 OR SW2 fail then verify that EAT entries relevant to SW1 and SW2 (event ID 0x9200, 0x9201, 0x9202 and 9203) are Disabled: RFDNSW1_Not_In_PosB_Fail (event ID 0x9200) RFDNSW1_Not_In_PosA_Fail (event ID 0x9201) RFDNSW2_Not_In_PosB_Fail (event ID 0x9202) RFDNSW2_Not_In_PosA_Fail (event ID 0x9203) - If SW3 OR SW4 fail then verify that EAT entries relevant to SW3 and SW4 (event ID 0x9204, 0x9205, 0x9206 and 9207) are Disabled: RFDNSW3_Not_In_PosB_Fail (event ID 0x9204) RFDNSW3_Not_In_PosA_Fail (event ID 0x9205) RFDNSW4_Not_In_PosB_Fail (event ID 0x9206) RFDNSW4_Not_In_PosA_Fail (event ID 0x9207)		
5		Report Monitoring List to check the RFDN SW entries		Next Step: 6
		Execute Telecommand <p style="text-align: center;">ReportMonitList</p> TC Control Flags : <p style="text-align: center;">GBM IL DSE --Y -- --</p> Subsch. ID : 10 Det. descr. : TEMPLATE Report current monitoring list, TC(12,8) no appl. data	DC51F170	
		Verify the status of the RFDN SWs in MOT: RFDN_SW1_NotInPos_B (monit ID 09) RFDN_SW1_NotInPos_A (monit ID 13) RFDN_SW2_NotInPos_B (monit ID 10) RFDN_SW2_NotInPos_A (monit ID 14) RFDN_SW3_NotInPos_B (monit ID 11) RFDN_SW3_NotInPos_A (monit ID 15) RFDN_SW4_NotInPos_B (monit ID 12) RFDN_SW4_NotInPos_A (monit ID 16) Four Monitoring entries related to RFDN SWs shall be enabled, according to the current switches position		
6		Roll back to the RFDN configuration as it was before the failure occurrence (yes/no)?		Next Step: yes 7 no END
7		Call procedure to change the SW		Next Step: END
		Execute Procedure: H_CRP_TTC_SWRB Roll back after RFDN SWs failure		

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End of Procedure				