Enable/Disable CCU meas. debug mode
File: H_CRP_CCU_DEBU.xls
Author: E. Picallo

Procedure Summary

Objectives

This procedure describes the steps needed to enable or disable the CCU meas. Debug mode.

The sensor measurements are provided with internal offset cancellation. Enabling debugging mode will cause the offset itself being provided for sensors in monitoring.

Summary of Constraints

Debugging is contingency operation of CCU and is disabled by default.

Enabling of the debug mode should only be performed if the Meas underflow error flag (KM045300/KM45301) was observed to be set (i.e. toggling).

The debug mode should be disabled (and return to nominal monitoring) after the investigation.

To command the Arm Config, the DLCM function and CCU valves shall not be armed nor activated.

The decontamination Heating Function shall be stopped.

The telecommand Config Arm, enables configuration loading for the next frame only. Therfore 1 sec after (next frame) the Config Arm is executed, the telecommand to Configure FPGA to enable Meas. Debug shall be executed.

To ensure those timming constrains, the telecomnands are time-tag. Thus the MTL function shall be running.

Spacecraft Configuration

Start of Procedure

CCU A/B switch ON and declared ON and valid on S/C Bus and configured ON in the UIU table,
CCU A/B meas. Debug mode Enable or Disable,
CCU A/B in monitoring mode

End of Procedure

CCU A/B switch ON and declared ON and valid on S/C Bus and configured ON in the UIU table,
CCU A/B meas. Debug mode Enable or Disable,
CCU A/B in monitoring mode

Reference File(s)

Input Command Sequences

Output Command Sequences

Enable/Disable CCU meas. debug mode
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HRKDEBU1
HRKDEBU2
HRKDEBU3
HRKDEBU4

Referenced Displays

ANDs	GRDs	SLDs
ZAZ9L999		(None)
ZAZ9K999		
ZAZ9J999		
ZAK02999		
ZAK03999		
ZAK06999		
ZAK07999		

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
21/01/09		1	Created	E. Picallo	
24/01/09	2	2	set CCUs acquisition period to 8s before enable debug mode set CCU acquisition period to 512s after disable debug mode ConfArm_Stat_X TM chek deleted (can not be verifed, active during 1 sec only)	E. Picallo	
25/03/09	2.2	3	Debug mode should enabled only if Meas underflow error flag is set. Debug mode should be disabled (and return to nominal monitoring) after the investigation	E. Picallo	

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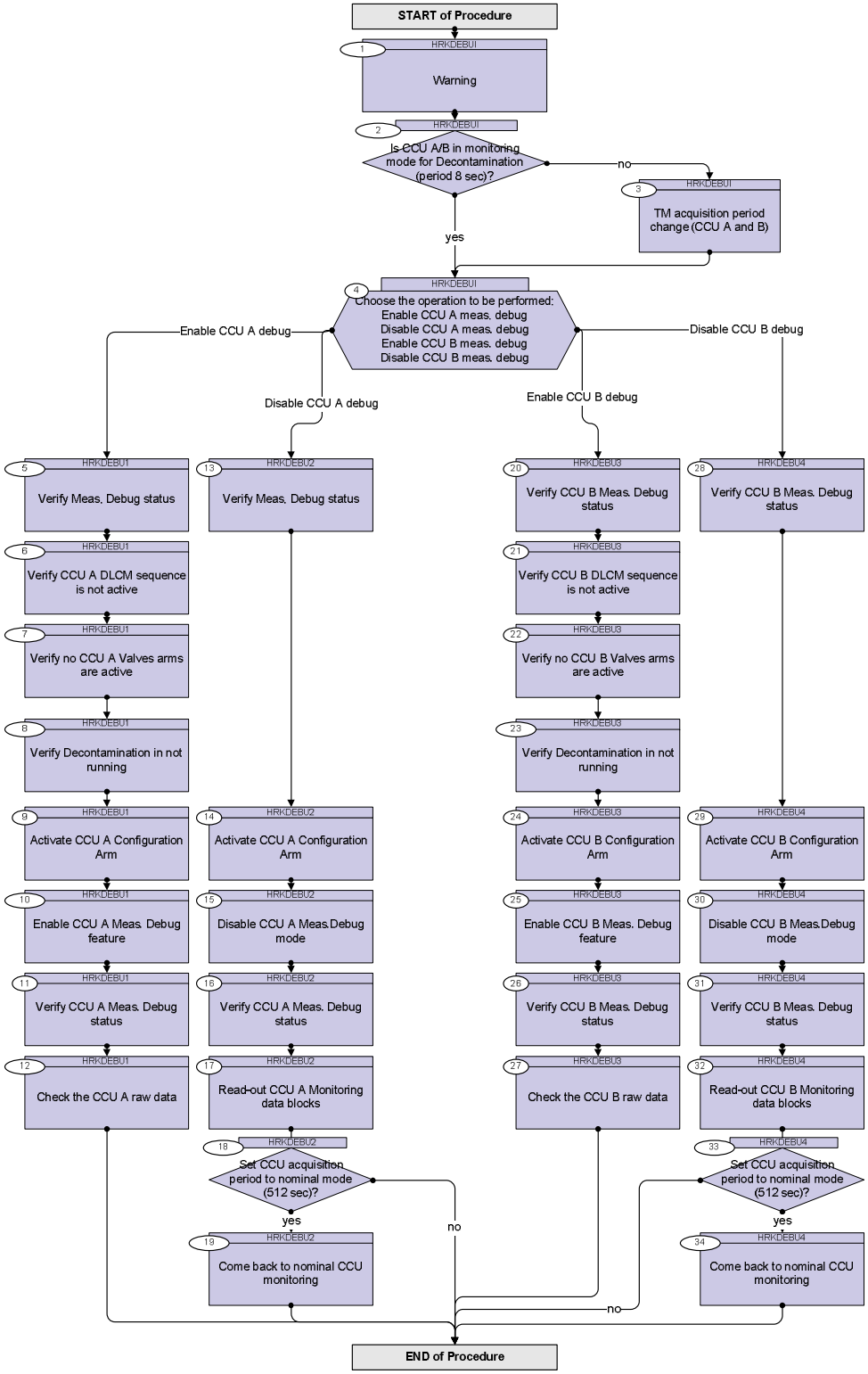
Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Beginning of Procedure		
		TC Seq. Name :HRKDEBUI (CCU meas. debug mode) *TimeTag Type: N* *Sub Schedule ID:*		
1		*Warning*		Next Step: 2
		Debugging is contingency operation of CCU and should be disabled by default.		
		In case Underflow error during measurement is detected (AD-conversion saturated at low end) which is an indication of malfunction because sufficient offset is inherently added in signal path, the meas. debug feature can be used to search the cause of malfunction.		
		The sensor measurements are provided with internal offset cancellation. Enabling debugging mode will cause the offset itself being provided for sensors in monitoring.		
		Offset cancellation is done by measuring the signal with current injected to sensor and the offset similarly but without current injection, and subtracting these. ***Meas. Debugging*** **feature can be used if data or status show anomalies, or there is otherwise reason to believe error in signal or offset measurement.**		
2		*Is CCU A/B in monitoring mode for Decontamination (period 8 sec)?*		Next Step: no 3 yes 4
3		*TM acquisition period change (CCU A and B)*		Next Step: 4
		In order to acquire the CCU sensors every 8 sec select the monitoring mode for decontamination		
		Execute Procedure: **H_FCP_CCU_ACQP** **CCU acquisition period update**		
4		*Choose the operation to be performed:* *Enable CCU A meas. debug* *Disable CCU A meas. debug* *Enable CCU B meas. debug* *Disable CCU B meas. debug*		Next Step: Enable CCU A debug 5 Disable CCU A debug 13 Enable CCU B debug 20 Disable CCU B debug 28

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :HRKDEBU1 (Enable CCU A debug) Enable CCU A meas. debug mode *TimeTag Type: B* *Sub Schedule ID:*		
5		*Verify Meas. Debug status*		Next Step: 6
		Verify Telemetry **MeasDebug_st A KM047300**	**= DISABLED**	
		Debugging is contingency operation of CCU and is disabled by default.		
6		*Verify CCU A DLCM sequence is not active*		Next Step: 7
		Verify State of DLCM A sequencer (execution phase) **DLCM_stat A KM022300**	**= Idle**	AND=ZAZ9L999
7		*Verify no CCU A Valves arms are active*		Next Step: 8
		Verify State of CCU A Valve 1 arming relay Telemetry **Arm_V103 KM110300**	**= DISARMED**	AND=ZAZ9K999
		Verify State of CCU A Valve 2 arming relay Telemetry **Arm_V501 KM120300**	**= DISARMED**	AND=ZAZ9K999
		Verify State of CCU A Valve 3 arming relay Telemetry **Arm_V504 KM130300**	**= DISARMED**	AND=ZAZ9K999
8		*Verify Decontamination in not running*		Next Step: 9
		Verify Telemetry **DhSts DEG17170**	**= Stopped**	AND=ZAZ9J999
9		*Activate CCU A Configuration Arm*		Next Step: 10
		The Configuration Arm telecommand, enables configuration loading for the next frame. To ensure that the enabling of the Meas. Debug feature occurs during the next frame both TCs are loaded into MTL with a delta execution time of 1 sec.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+00.00.00 UT=+	Execute Telecommand **CCUA - Arm reconf FPGA** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : TC(8,4,8,1) for CCUA arm recong FPGA	**ZCB06999**	
10		*Enable CCU A Meas. Debug feature*		Next Step: 11
		The test mode is started on the next Frame sync. and continues until explicitly disabled.		
		The sensor measurements are provided with internal offset cancellation. Enabling debugging mode will cause the offset itself being provided for sensors in monitoring.		
		Meas. Underflow status is not generated in case of possible underflow if debugging is enabled.		
	ET=+00.00.01 UT=+	Execute Telecommand **CCUA - Debug enable** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : TC(8,4,8,1) for CCUA Debug enable	**ZCB08999**	
11		*Verify CCU A Meas. Debug status*		Next Step: 12
		Verify Telemetry **MeasDebug_st A** **KM047300**	**= ENABLED**	
12		*Check the CCU A raw data*		Next Step: END
		Check the CCU A raw data (do not use derived parameters and do not apply any engineering conversions) **CCU A Derivated parameters will read non meaningful calibrated values while CCU A is in debug mode.**		
		The offset should typically be approx. 1666 (decimal; direct AD-reading, corresponds to about 155 mV in ADC input). **If the Meas underflow error flag (KM045300) was set (resp. toggling) then it is expected that at least one channel measures an offset deviating from this expected value.**		
		Refer to Checkform ZAK02999 at the back of this document		**ANDCK**

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Refer to Checkform ZAK03999 at the back of this document		**ANDCK**
		TC Seq. Name :HRKDEBU2 (Disable CCU A debug) Disable CCU A meas. debug mode *TimeTag Type: B* *Sub Schedule ID:*		
13		*Verify Meas. Debug status*		Next Step: 14
		Verify Telemetry **MeasDebug_st A KM047300**	**= ENABLED**	
14		*Activate CCU A Configuration Arm*		Next Step: 15
		The Configuration Arm telecommand, enables configuration loading for the next frame. To ensure that the disabling of the Meas. Debug feature occurs during the next frame both TCs are loaded into MTL with a delta execution time of 1 sec.		
	ET=+00.00.00 UT=+	Execute Telecommand **CCUA - Arm reconf FPGA** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : TC(8,4,8,1) for CCUA arm recong FPGA	**ZCB06999**	
15		*Disable CCU A Meas.Debug mode*		Next Step: 16
	ET=+00.00.01 UT=+	Execute Telecommand **CCUA - Debug disable** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : TC(8,4,8,1) for CCUA Debug disable	**ZCB10999**	
16		*Verify CCU A Meas. Debug status*		Next Step: 17
		Verify Telemetry **MeasDebug_st A KM047300**	**= DISABLED**	
17		*Read-out CCU A Monitoring data blocks*		Next Step: 18

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify nominal CCU A sensor measurements (provided with internal offset cancellation)		
		Execute Procedure: **H_FCP_CCU_MONS** **CCU Sensors monitoring**		
18		*Set CCU acquisition period to nominal mode (512 sec)?*		Next Step: yes 19 no END
19		*Come back to nominal CCU monitoring*		Next Step: END
		Execute Procedure H_FCP_CCU_ACQP and select the nominal monitoring mode.		
		Execute Procedure: **H_FCP_CCU_ACQP** **CCU acquisition period update**		
		TC Seq. Name :HRKDEBU3 (Enable CCU B debug) Enable CCU B meas. debug mode *TimeTag Type: B* *Sub Schedule ID:*		
20		*Verify CCU B Meas. Debug status*		Next Step: 21
		Verify Telemetry **MeasDebug_st B** **KM047301**	**= DISABLED**	(None)
		Debugging is contingency operation of CCU and is disabled by default.		
21		*Verify CCU B DLCM sequence is not active*		Next Step: 22
		Verify State of DLCM B sequencer (execution phase) **DLCM_stat B** **KM022301**	**= Idle**	AND=ZAZ9L999
22		*Verify no CCU B Valves arms are active*		Next Step: 23
		Verify State of CCU B Valve 1 arming relay Telemetry **Arm_V106** **KM110301**	**= DISARMED**	AND=ZAZ9K999
		Verify State of CCU B Valve 2 arming relay Telemetry **Arm_V503** **KM120301**	**= DISARMED**	AND=ZAZ9K999

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify State of CCU B Valve 3 arming relay Telemetry **Arm_V505 KM130301**	**= DISARMED**	AND=ZAZ9K999
23		*Verify Decontamination in not running*		Next Step: 24
		Verify Telemetry **DhSts DEG17170**	**= Stopped**	AND=ZAZ9J999
24		*Activate CCU B Configuration Arm*		Next Step: 25
		The Configuration Arm telecommand, enables configuration loading for the next frame. To ensure that the enabling of the Meas. Debug feature occurs during the next frame both TCs are loaded into MTL with a delta execution time of 1 sec.		
	ET=+00.00.00 UT=+	Execute Telecommand **CCUB - Arm reconf FPGA** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : TC(8,4,8,1) for CCUB arm recong FPGA	**ZCB07999**	
25		*Enable CCU B Meas. Debug feature*		Next Step: 26
		The test mode is started on the next Frame sync. and continues until explicitly disabled.		
		The sensor measurements are provided with internal offset cancellation. Enabling debugging mode will cause the offset itself being provided for sensors in monitoring.		
		Meas. Underflow status is not generated in case of possible underflow if debugging is enabled.		
	ET=+00.00.01 UT=+	Execute Telecommand **CCUB - Debug enable** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : TC(8,4,8,1) for CCUB Debug enable	**ZCB09999**	
26		*Verify CCU B Meas. Debug status*		Next Step: 27
		Verify Telemetry **MeasDebug_st B KM047301**	**= ENABLED**	(None)

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
27		*Check the CCU B raw data*		Next Step: END
		Check the CCU B raw data (do not use derived parameters and do not apply any engineering conversions) **CCU B Derivated parameters will read non meaningful calibrated values while CCU B is in debug mode.**		
		The offset should typically be approx. 1666 (decimal; direct AD-reading, corresponds to about 155 mV in ADC input). **If the Meas underflow error flag (KM045301) was set (resp. toggling) then it is expected that at least one channel measures an offset deviating from this expected value.**		
		Refer to Checkform ZAK06999 at the back of this document		**ANDCK**
		Refer to Checkform ZAK07999 at the back of this document		**ANDCK**
		TC Seq. Name :HRKDEBU4 (Disable CCU B debug) Disable CCU B meas. debug mode *TimeTag Type: B* *Sub Schedule ID:*		
28		*Verify CCU B Meas. Debug status*		Next Step: 29
		Verify Telemetry **MeasDebug_st B KM047301**	**= ENABLED**	(None)
29		*Activate CCU B Configuration Arm*		Next Step: 30
		The Configuration Arm telecommand, enables configuration loading for the next frame. To ensure that the disabling of the Meas. Debug feature occurs during the next frame both TCs are loaded into MTL with a delta execution time of 1 sec.		
	ET=+00.00.00 UT=+	Execute Telecommand **CCUB - Arm reconf FPGA** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : TC(8,4,8,1) for CCUB arm recong FPGA	**ZCB07999**	
30		*Disable CCU B Meas.Debug mode*		Next Step: 31

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+00.00.01 UT=+	Execute Telecommand **CCUB - Debug disable** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : TC(8,4,8,1) for CCUB Debug disable	**ZCB11999**	
31		*Verify CCU B Meas. Debug status*		Next Step: 32
		Verify Telemetry **MeasDebug_st B** **KM047301**	**= DISABLED**	(None)
32		*Read-out CCU B Monitoring data blocks*		Next Step: 33
		Verify CCU B nominal sensor measurements (provided with internal offset cancellation)		
		Execute Procedure: **H_FCP_CCU_MONS** **CCU Sensors monitoring**		
33		*Set CCU acquisition period to nominal mode (512 sec)?*		Next Step: yes 34 no END
34		*Come back to nominal CCU monitoring*		Next Step: END
		Execute Procedure H_FCP_CCU_ACQP and select the nominal monitoring mode.		
		Execute Procedure: **H_FCP_CCU_ACQP** **CCU acquisition period update**		
		End of Procedure		

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ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DES0M161	CcuaSA01_StMSW			KM203302	Temp_Tsp		
DES1V161	CcuaSA01_StLSW			KM204302	Temp_T106		
DES33161	Ccua01RspTMSW			KM205302	Temp_T111		
DES4A161	Ccua01RspTLSW			KM206302	Temp_T227		
DES0N161	CcuaSA08_StMSW			KM207302	Temp_T228		
DES1X161	CcuaSA08_StLSW			KM208302	Temp_T232		
DES34161	Ccua08RspTMSW			KM209302	Temp_T223_1		
DES4B161	Ccua08RspTLSW			KM210302	Temp_T234_1		
KM150300	Time_ConstID A			KM211302	Temp_T236_1		
KM154300	TIME CCU A			KM212302	Temp_T242_1		
KM151300	Time_M CCU A			KM213302	Temp_T244_1		
KM152300	Time_N CCU A			KM214300	G_calib_s15 A		
KM153300	Time_L CCU A			KM215300	G_calib_s16 A		
DES0P161	CcuaSA11_StMSW			KM216302	Temp_T223_2		
DES1Y161	CcuaSA11_StLSW			KM217302	Temp_T234_2		
DES35161	Ccua11RspTMSW			KM218302	Temp_T236_2		
DES4C161	Ccua11RspTLSW			KM219302	Temp_T242_2		
KM280300	Mon_Time CCU A			KM220302	Temp_T244_2		
KM281300	Mon_TimM CCU A			DES0R161	CcuaSA12_StMSW		
KM282300	Mon_TimN CCU A			DES1Z161	CcuaSA12_StLSW		
KM283300	Mon_TimL CCU A			DES36161	Ccua12RspTMSW		
KM370300	Mon_WORD4 MA			DES4D161	Ccua12RspTLSW		
KM371300	Mon_WORD5 MA			KM221302	Temp_T202		
KM372300	Mon_WORD6 MA			KM222302	Temp_T212		
KM380300	Start_Mon_02 A			KM223302	Temp_T246		
KM381300	Start_Mon_03 A			KM224302	Temp_T250		
KM382300	Start_Mon_04 A			KM225302	Temp_T254		
KM383300	Start_Mon_05 A			KM226302	Temp_T258		
KM384300	Start_Mon_06 A			KM227302	Temp_Tsp		
KM200302	Temp_T102_ch00A			KM228300	G_calib_s24 A		
KM201302	Temp_T105_ch01A			KM229300	G_calib_s25 A		
KM202302	Temp_T221			KM230300	G_calib_s26 A		

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ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
KM231300	G_calib_s27 A			KM259302	Temp_T931		
KM232302	Temp_T321			KM260302	Temp_T933		
KM233302	Temp_T323			KM261302	Temp_T935		
KM234302	Temp_T501			KM262302	Temp_Spare		
KM235302	Temp_T505			KM263300	G_calib_R A		
KM236302	Temp_T651			KM264302	Pres_P701		
KM237302	Temp_T901			KM265302	Pres_Psp		
KM238302	Temp_T903			KM266300	Com_Cal_P1 A		
KM239302	Temp_T907			KM267300	G_calib_P1 A		
KM240302	Temp_T911			KM268300	Spare		
KM241302	Temp_Tsp			KM269302	Valv_Stat_VS103		
KM242302	Temp_T421			KM270302	Valv_Stat_VS501		
KM243302	Temp_T424			KM271302	Valv_Stat_VS504		
KM244302	Temp_T442			KD272300	CCU_A_DLCM_V		
KM245302	Temp_T461			KD273300	CCU_A_DLCM_I		
KM246302	Temp_T464			KM274300	Temp_CCUiTM2M A		
KM247300	Com_Cal_T A			KM275300	Volt_CCUiV5 A		
KM248302	Temp_T312			KM276300	Volt_CCUiV15 A		
KM249302	Temp_T314			KM277300	Volt_CCUiV9_5 A		
KM250302	Temp_T316			KM278300	Temp_CCUiTVCM A		
KM251302	Temp_T905			KM279300	Zero_Ref A		
KM252302	Temp_T909			DED3F161	BSW_SDBRTACCUA		
DES0S161	CcuaSA13_StMSW			DED3G161	CCUA_OnOff		
DES20161	CcuaSA13_StLSW			DED3H161	CCUA_DeadAlive		
DES37161	Ccua13RspTMSW			DED3Z161	CCUA_WellSickTC		
DES4E161	Ccua13RspTLSW			DED3J161	CCUA_WellSickTM		
KM253302	Temp_T331			DED3K161	CCUA_ValidInval		
KM254302	Temp_T333			DED60161	BSW_SDBRTCCUA		
KM255302	Temp_T335			DED61161	CCUA_VitalCnt		
KM256302	Temp_T337			DED62161	CCUA_VitalNonV		
KM257302	Temp_T339			DED63161	CCUA_NomRed		
KM258302	Temp_T341			DED70161	BSW_SDBCCUAAcq		

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ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DES0V161	CcubSA01_StMSW			KM203303	Temp_T225		
DES23161	CcubSA01_StLSW			KM204303	Temp_T107		
DES3A161	Ccub01RspTMSW			KM205303	Temp_T112		
DES4H161	Ccub01RspTLSW			KM206303	Temp_T222		
DES0X161	CcubSA08_StMSW			KM207303	Temp_T231		
DES24161	CcubSA08_StLSW			KM208303	Temp_Tspare		
DES3B161	Ccub08RspTMSW			KM209303	Temp_T226_1		
DES4J161	Ccub08RspTLSW			KM210303	Temp_T233_1		
KM150301	Time_ConstID B			KM211303	Temp_T235_1		
KM154301	TIME CCU B			KM212303	Temp_T237_1		
KM151301	Time_M CCU B			KM213303	Temp_T248_1		
KM152301	Time_N CCU B			KM214301	G_calib_s15 B		
KM153301	Time_L CCU B			KM215301	G_calib_s16 B		
DES0Y161	CcubSA11_StMSW			KM216303	Temp_T226_2		
DES25161	CcubSA11_StLSW			KM217303	Temp_T233_2		
DES3C161	Ccub11RspTMSW			KM218303	Temp_T235_2		
DES4K161	Ccub11RspTLSW			KM219303	Temp_T237_2		
KM280301	Mon_Time CCU B			KM220303	Temp_T248_2		
KM281301	Mon_TimM CCU B			DES0Z161	CcubSA12_StMSW		
KM282301	Mon_TimN CCU B			DES26161	CcubSA12_StLSW		
KM283301	Mon_TimL CCU B			DES3D161	Ccub12RspTMSW		
KM370301	HK_WORD2 MB			DES4L161	Ccub12RspTLSW		
KM371301	HK_WORD3 MB			KM221303	Temp_T208		
KM372301	HK_WORD4 MB			KM222303	Temp_T213		
KM380301	Start_Mon_02 B			KM223303	Temp_T247		
KM381301	Start_Mon_03 B			KM224303	Temp_T252		
KM382301	Start_Mon_04 B			KM225303	Temp_T256		
KM383301	Start_Mon_05 B			KM226303	Temp_T703		
KM384301	Start_Mon_06 B			KM227303	Temp_T862		
KM200303	Temp_T101_ch00B			KM228301	G_calib_s24 B		
KM201303	Temp_T104_ch01B			KM229301	G_calib_s25 B		
KM202303	Temp_T224			KM230301	G_calib_s26 B		

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ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
KM231301	G_calib_s27 B			KM259303	Temp_T908		
KM232303	Temp_T311			KM260303	Temp_T912		
KM233303	Temp_T313			KM261303	Temp_T507		
KM234303	Temp_T315			KM262303	Temp_T342		
KM235303	Temp_T904			KM263301	G_calib_R B		
KM236303	Temp_T906			KM264303	Pres_P502		
KM237303	Temp_T910			KM265303	Pres_Psp		
KM238303	Temp_T932			KM266301	Com_Cal_P1 B		
KM239303	Temp_T934			KM267301	Spare		
KM240303	Temp_Tsp			KM268301	G_calib_P1 B		
KM241303	Temp_Tsp			KM269303	Valv_Stat_VS106		
KM242303	Temp_T422			KM270303	Valv_Stat_VS503		
KM243303	Temp_T441			KM271303	Valv_Stat_VS505		
KM244303	Temp_T444			KM272301	DCLM_Vol B_ch72		
KM245303	Temp_T462			KM273301	DCLM_Cur B_ch73		
KM246303	Temp_T701			KM274301	Temp_CCUiTM2M B		
KM247301	Com_Cal_T B			KM275301	Volt_CCUiV5 B		
KM248303	Temp_T332			KM276301	Volt_CCUiV15 B		
KM249303	Temp_T334			KM277301	Volt_CCUiV9_5 B		
KM250303	Temp_T336			KM278301	Temp_CCUiTVCM B		
KM251303	Temp_T338			KM279301	Zero_Ref B		
KM252303	Temp_T340			DED40161	BSW_SDBRTACCUB		
DES10161	CcubSA13_StMSW			DED41161	CCUB_OnOff		
DES27161	CcubSA13_StLSW			DED42161	CCUB_DeadAlive		
DES3E161	Ccub13RspTMSW			DED43161	CCUB_WellSickTC		
DES4M161	Ccub13RspTLSW			DED44161	CCUB_WellSickTM		
KM253303	Temp_T322			DED45161	CCUB_ValidInval		
KM254303	Temp_T324			DED6F161	BSW_SDBRTCCUB		
KM255303	Temp_T504			DED6J161	CCUB_VitalCnt		
KM256303	Temp_T506			DED6G161	CCUB_VitalNonV		
KM257303	Temp_T652			DED6H161	CCUB_NomRed		
KM258303	Temp_T902			DED7F161	BSW_SDBCCUBAcq		