

GIADA FS MODEL

**REPORT ON
IN FLIGHT ACTIVE PAYLOAD CHECKOUT N. 10 (PC10)
performed on
21-09-2009 and 02-10-2009**

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REVISIONS LOG

REV	DOCUMENT CHANGE ORDER	DATE	CHANGES DESCRIPTION	PREPARED
0	-	11-10-2011	First issue	GIADA Team

1. SCOPE AND APPLICABILITY

Payload Checkout 10 (PC10) was an active checkout to perform interactive operations and to request spacecraft pointing was given to all Rosetta payload teams. All Rosetta payload took part in this scenario.

The Active Payload Checkout 10 ran for 12 consecutive days starting on the 21th September 2009 until the 2th October 2009. The PC10 for GIADA consists of two phases The 1st phase is a passive test (GD01) similar to the previous Passive Payload Checkouts the 2nd phase is an active test; GD02 is dealt with GIADA/VIRTIS interference test, in GD03 we upload on-board of new Context File settings performing and checking new procedures, GD_INT is dealt with GIADA/ROSINA interference test.

The passive test (GD01), which includes standard procedures and full functional verification, was executed by switching on Main and Redundant I/Fs in sequence and executing similar procedures for the two cases. GD02, GD03 and GD_INT were executed only on Main I/F.

This document reports the results obtained on GIADA experiment during PC10.

This report is applicable to GIADA FS model on board the Rosetta S/C. The data were retrieved from DDS by means of the PI Workstation located at Università Parthenope in Naples

GIADA IWS software configuration is GES v. 4.2.2 plus RSOC Converter v. 1.1.2. GIADA in flight software configuration is 2.3 plus three additional patches (one more patch is used to update the context file).

2. REFERENCES

2.1 APPLICABLE DOCUMENT

AD1	RO-EST-RS-3001/EID A	ROSETTA Experiment Interface Document – Part A
AD2	RO-EST-RS-3009/EIDB	ROSETTA GIADA Experiment Interface Document – Part B
AD3	RO-ESC-PL-5000 – last issue	Flight Control Procedure
AD4	GIA-GAL-MA-007 Issue 4	GIADA Flight Spare Experiment User Manual last version

2.2 REFERENCE DOCUMENT

	None.	

3. DEFINITIONS AND ABBREVIATIONS

3.1 ABBREVIATIONS

CAL	Calibration
CF	Context File
CREP	Cover REPort
CT	Configuration Table
DDS	Data Disposition System
EGSE	Electrical Ground Support Equipment
EQM	Electrical Qualification Model
ESA	European Space Agency
FCP	Flight Control Procedure
FS	Flight Spare
GDS	Grain Detection System
GES	GIADA EGSE SW
GIADA	Grain Impact Analyser and Dust Accumulator
HK	House Keeping
I/F	InterFace
INAF-OAC	INAF - Osservatorio Astronomico di Capodimonte – Napoli (I)
IRQ	Interrupt ReQuest
IS	Impact Sensor
IWS	Instrument Work-Station
MBS	Micro Balance System
ME	Main Electronics
MTL	Mission TimeLine
MON	Monitor
OBCP	On-Board Control Procedure
PC	Payload Checkout
PI	Principal Investigator
PS	GIADA Power Supply
PZT	(IS) Piezoelectric Sensor
RED	Redundant
REV	Revision
RMOC	Rosetta Mission Operation Centre
RSOC	Rosetta Science Operation Centre
S/C	(Rosetta) Spacecraft
S/S	(GIADA) Sub-system (e.g. IS or GDS or MBS)
SCI	Scientific
SSC	Source Sequence Count
SSMM	Solid State Mass Memory on-board of Rosetta Spacecraft
SW	Software
TC	TeleCommand
TM	Telemetry
UM	User Manual
UTC	Coordinated Universal Time
VC0	Virtual Channel 0 (Real Time TM packets)
VC1	Virtual Channel 1 (TM packets coming from Mass Memory)

4. DESCRIPTION OF ACTIVITIES

The Active Payload Checkout n. 10 (PC10) scenario begins on the 8th September 2009 and ran for 18 days to the 4th October 2009, according to the timelines reported in Section 11.

The GIADA PC10 consists of different tests, named respectively GD01, GD02 and GD03 and GD_INT in ESA document.

- GD01 is the passive test routinely executed in every payload checkout , 6-Months status check;
- GD02 is a test of GIADA/VIRTIS interference;
- GD03 upload on-board of new Context File settings performing and checking new procedures.
- GD_INT performs a interference test with ROSINA.

PC10 is a maintenance and calibration scenario plan and therefore there are no scientific objectives. Details of the plan of activities referred to as passive part of PC10 are in Section 11.1.

No problem appeared during PC10 open/close cover procedures.

In the next table there are some information about PC10

Scenario period	21/09/09 to 02/10/09
Scenario duration	12 days
Sun distance	1.30 AU to 1.22 AU
Earth distance	0.34 AU to 0.25 AU
Propagation delay	~3 min.

The data were off-line elaborated on the PI IWS at INAF-OAC in Naples.

5. SUMMARY OF DATA ANALYSIS

The full sets of plots about Housekeeping data are reported in Sections 6 and 7 for GD01 test on the Main and Redundant I/F's respectively; in Section 8, 9 and 10 for GD02, GD03 and GD_INT tests, respectively, for the Main I/F..

Here following the main findings are summarised.

5.1 GENERAL CONSIDERATIONS

Test started on "Sat Sep 19 2009 06:26:09.710518", when the first TM packet was received from GIADA switched on the Main interface; the last TM packet on the Main interface was received on "Sat Sep 19 2009 18:02:58.733305". Test on the Redundant interface started on "Sat Sep 19 2009 18:26:09.713882" (1st packet received) and ended on "Sun Sep 20 2009 06:02:58.736668" (last packet received). Test on the Main interface GD02 started on "Sat Sep 22 2009 00:31:13.709511" (1st packet received) and ended on "Sat Sep 22 2009 04:50:03.191188" (last packet received). Test on the Main interface GD03 started on "Sat Sep 20 2009 06:26:09.717246" (1st packet received) and ended on "Sat Sep 20 2009 07:22:49.428447" (last packet received). Test on the Main interface GD_INT started on "Sat Sep 21 2009 22:36:09.708973" (1st packet received) and ended on "Sat Sep 21 2009 23:34:08.912369" (last packet received).

The first expected packet (**Connection Test Report, service 17,2**) was **not received** in the time window of any test, because the DDS has marked it with a wrong UTC time, being an unsynchronised time tag (bad time quality) TM report..

At the 3rd IS power-on both on Main I/F (San Sep 19 2009 16:39:59) and Red I/F (San Sep 20 2009 04:40:00), the event "**Hardware error in IS event detection circuitry. No IRQ received.**" was received (see TCTM report file residing in the log directory of GES). This is a false message produced by the ME of GIADA when the IS electronics is powered-on. This is a known problem (see relevant Remark in GIADA FS UM [AD 4]).

As reported in the "Cover Reports" (CREP) no OPEN/CLOSE problem occurred during PC10

5.2 GIADA STATUS

The **current consumption** and **power supply temperatures** are shown in **Errore. L'origine riferimento non è stata trovata.** for Main on GD01, **Errore. L'origine riferimento non è stata trovata.** for Redundant on GD01, Figure 8.1-2 for Main GD02 and Figure 10.1-2 for GD_INT; Power values must be compared with soft and hard limits reported in GIADA FS UM (**AD4**) and summarised in Table 5.2-1.

As reported in GIADA FS UM (**AD4**), the Soft and Hard Alarm Limits for Power consumption in Table 5.2-1 for parameters NGDD0086, NGDD0087 and/or NGDD0088 refer to the different GIADA operating modes. The Soft Alarm Limits in Normal and Flux Modes refer to nominal conditions, i.e. with all sub-systems switched ON. This means that when GIADA is in Normal Mode, but not with all sub-systems ON (or in Flux with MBS OFF), the lower Soft Alarm Limits indicated in the Table can be overcome. In order to avoid flood of Out Of Limits (OOL) alarms, it has been decided (July 2006) to refer the Hard Alarm Limits to the extreme instrument status for each mode (e.g., in normal mode, with all subsystems off – lower – or at maximum power consumption - upper). Other configurations not related to real GIADA failure may still give OOL, related to operation in non nominal temperature conditions, although such conditions have never been experienced so far.

In general, all **functional parameters** measured during the PC10 test behave as expected, with the exception of some OOLs reported in the previous section 5.1

QUANTITY	NAME	LNAME	SOFT ALARM LIMITS		HARD ALARM LIMITS	
			Lower	Higher	Lower	Higher
+5V Power Consumption ⁽¹⁾	NGDD0086	Current +5V	110 mA	150 mA	80 mA	180 mA
+15V Power Consumption ⁽¹⁾	NGDD0087	Current +15V	30 mA	60 mA	20 mA	70 mA
-15V Power Consumption ⁽¹⁾	NGDD0088	Current -15V	50 mA	90 mA	40 mA	100 mA
+5V Power Consumption ⁽²⁾	NGDD0086	Current +5V	110 mA	150 mA	80 mA	180 mA
+15V Power Consumption ⁽²⁾	NGDD0087	Current +15V	30 mA	600 mA	20 mA	700 mA
-15V Power Consumption ⁽²⁾	NGDD0088	Current -15V	50 mA	600 mA	40 mA	700 mA
+5V Power Consumption ⁽³⁾	NGDD0086	Current +5V	110 mA	1600 mA	80 mA	1800 mA
+15V Power Consumption ⁽³⁾	NGDD0087	Current +15V	30 mA	550 mA	20 mA	600 mA
-15V Power Consumption ⁽³⁾	NGDD0088	Current -15V	50 mA	350 mA	40 mA	400 mA
+5V Power Consumption ⁽⁴⁾	NGDD0086	Current +5V	110 mA	170 mA	80 mA	1500 mA
+15V Power Consumption ⁽⁴⁾	NGDD0087	Current +15V	30 mA	200 mA	20 mA	220 mA
-15V Power Consumption ⁽⁴⁾	NGDD0088	Current -15V	50 mA	135 mA	40 mA	155 mA

Table 5.2-1. Hard and Soft limits for GIADA FS power consumption

⁽¹⁾ Safe mode

⁽²⁾ Cover mode

⁽³⁾ Normal mode

⁽⁴⁾ Flux mode

All **Temperatures** behave as expected (Main on GD01: **Errore. L'origine riferimento non è stata trovata.**3,,

Figure 6.1-4; Red on GD01: **Errore. L'origine riferimento non è stata trovata.**3, **Errore. L'origine riferimento non è stata trovata.**4, Main on GD02: **Errore. L'origine riferimento non è stata trovata.**3, **Errore. L'origine riferimento non è stata trovata.**4, Main on GD03: **Errore. L'origine riferimento non è stata trovata.**3, **Errore. L'origine riferimento non è stata trovata.**4, Main on GD_INT: **Errore. L'origine riferimento non è stata trovata.**3, **Errore. L'origine riferimento non è stata trovata.**4. The peaks visible at the beginning and at the end of

Frangibolt and IS temperature profiles are features due to the temporary increasing of power consumption at Power-on of the motor heaters (see Figure 6.1-5 and Figure 6.1-6 for Main on GD01; **Errore. L'origine riferimento non è stata trovata.** and **Errore. L'origine riferimento non è stata trovata.** for Red on GD01 see Figure 6.1-5 and Figure 6.1-6 for Main on GD02; see Figure 6.1-5 and Figure 6.1-6 for Main on GD03 and see Figure 6.1-5 and Figure 6.1-6 for Main on GD_INT).

The trend of the IS Temperature is more noisy with the Main than with the Red I/F (Main on GD01: Figure 6.3-4; Red on GD01: **Errore. L'origine riferimento non è stata trovata.**; Main on GD02: Figure 6.3-4; Main on GD03: Figure 6.3-4 and Main on GD_INT: Figure 6.3-4).

The detection **Thresholds** applied on GDS are shown in

Figure 6.2-2 (Main on GD01), **Errore. L'origine riferimento non è stata trovata.** (Red on GD01), in

Figure 6.2-2 (Main on GD02), in

Figure 6.2-2 (Main on GD03 and in

Figure 6.2-2 (Main on GD_INT), **Errore. L'origine riferimento non è stata trovata.** while those applied to PZT3 and PZT5 of IS are shown in Figure 6.3-23 and Figure 6.3-34 (Main on GD01), **Errore. L'origine riferimento non è stata trovata.**³ and **Errore. L'origine riferimento non è stata trovata.**⁴ (Red on GD01), Figure 6.3-23 and Figure 6.3-34 (Main on GD02), Figure 6.3-23 and Figure 6.3-34 (Main on GD03) and in Figure 6.3-23 and Figure 6.3-34 (Main on GD_INT) . Moreover, Range and Gain for IS are set as shown in Table 5.2-2.

RANGE	GAIN				
	PZTA	PZTB	PZTC	PZTD	PZTE
Low	High	High	High	High	High

Table 5.2-2. IS Range and Gain configuration

During PC10 no scientific data were occurred..

During PC10 test the **GDS CAL data** show for the **GDS Left side** an output level of about **1 V (small increase with respect to the previous PC9 test)** and for the **GDS Right side** a saturation level of about **0.2 V** (depending on temperature). These are the nominal values occurring when the GDS is not saturated.

The frequency level of all MBS has not relevant changes with respect to PC9 test.

6. PC10 DATA ANALYSIS – MAIN INTERFACE (GD01)

6.1 GIADA STATUS

Figure 6.1-1. HK Status of GIADA vs. time – Main

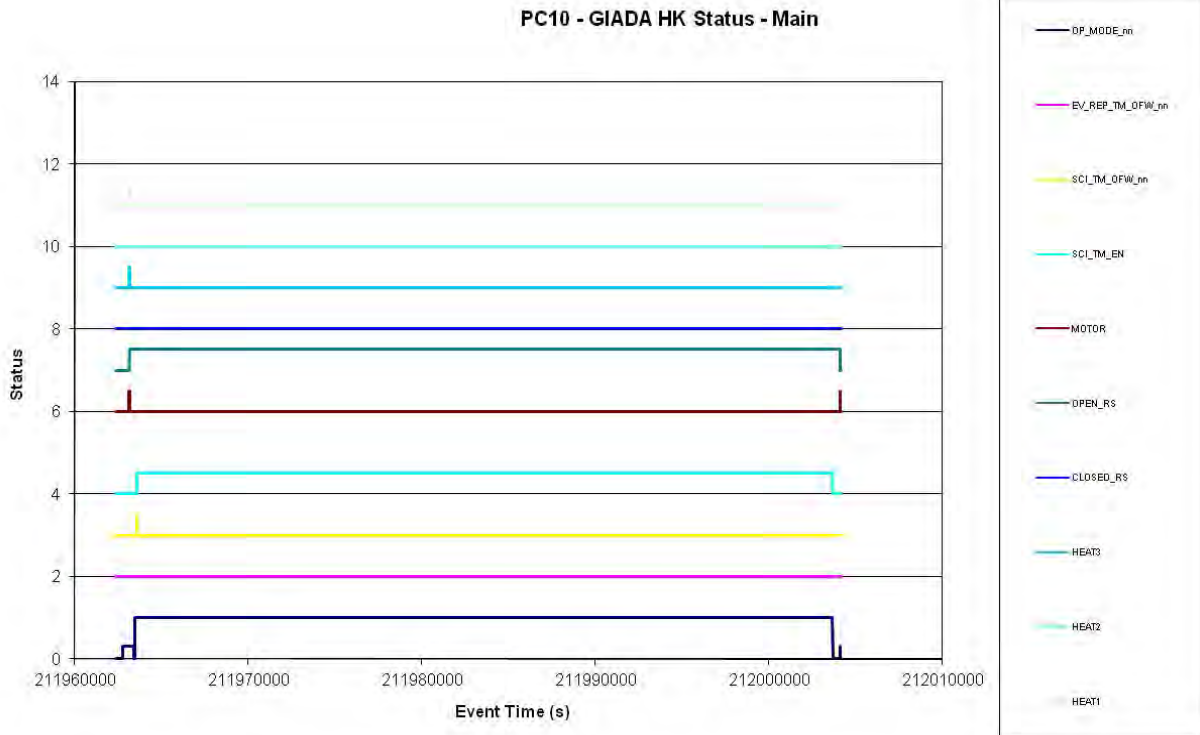


Figure 6.1-2. Power profile and Power Supply temperature vs. time - HK, Main

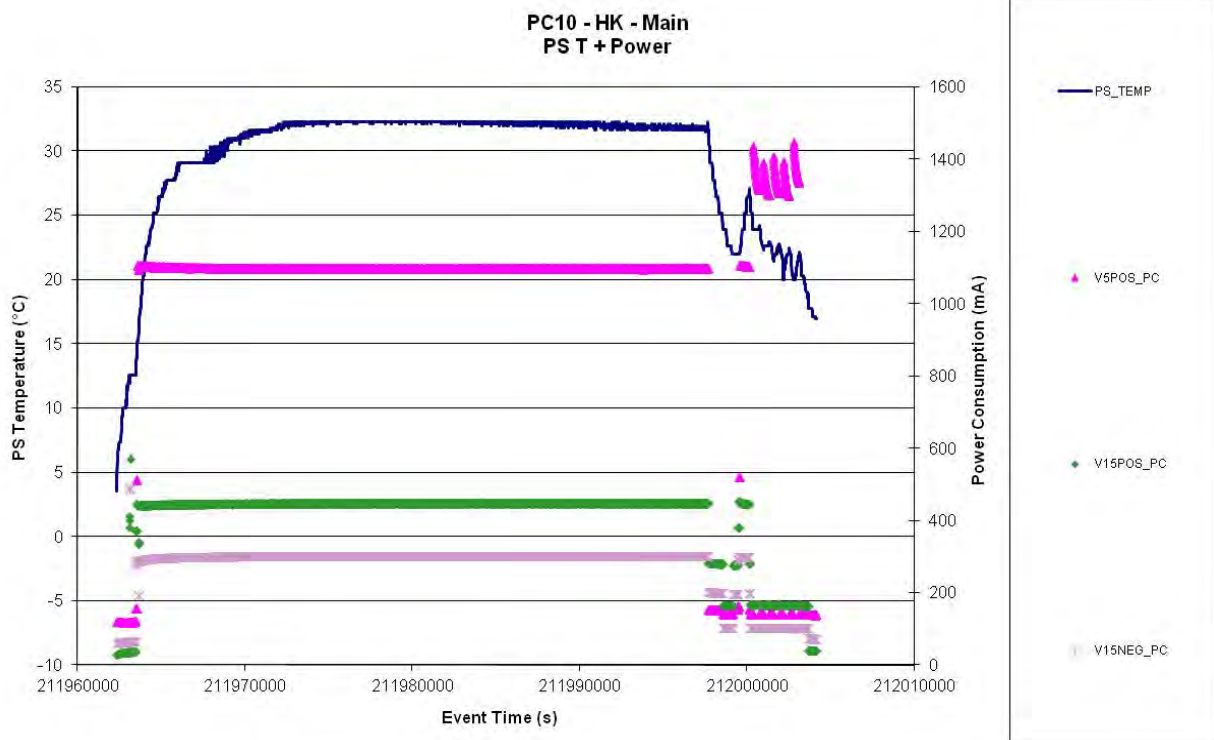


Figure 6.1-3. Evolution of temperatures of system elements vs. time - HK, Main

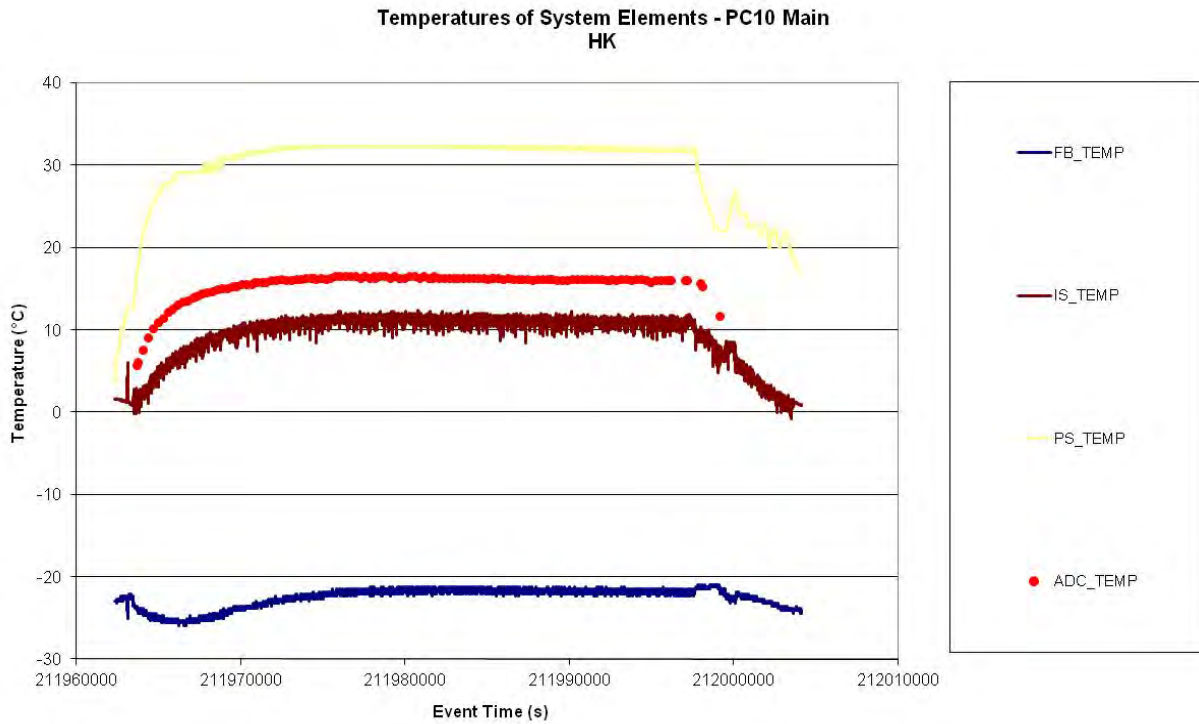


Figure 6.1-4. Evolution of temperatures of sub-systems vs. time with instrument in Normal Mode- Main

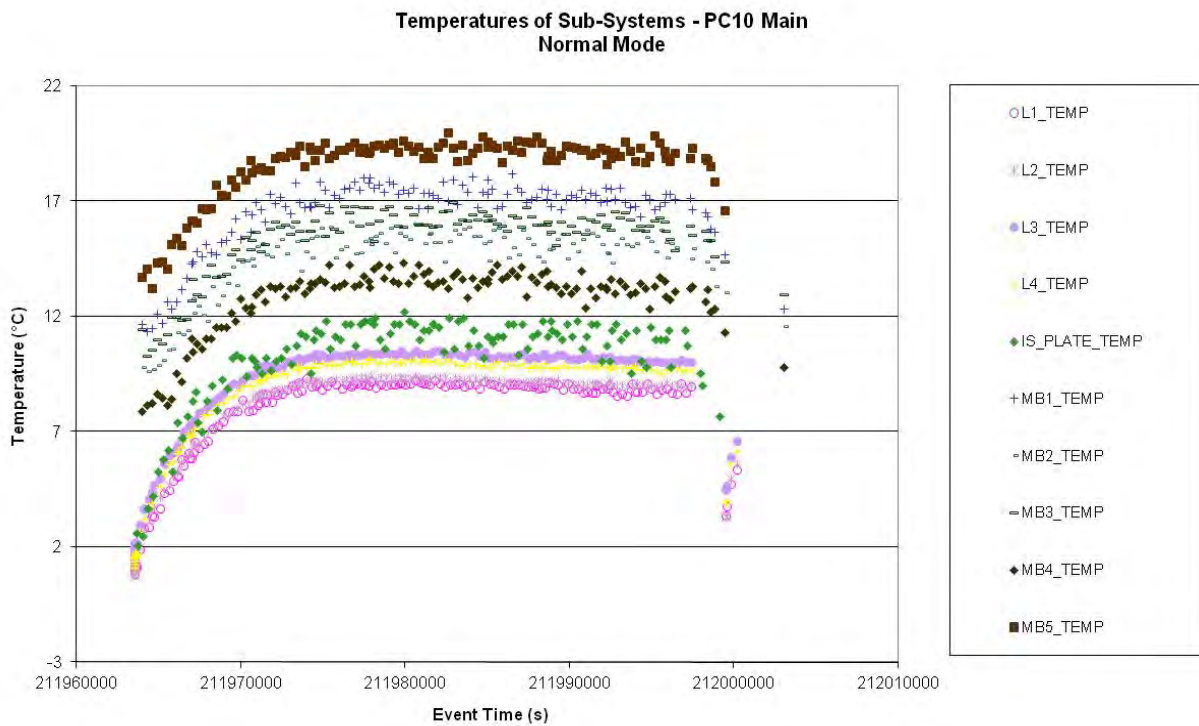


Figure 6.1-5. HK Status versus Temperatures of system elements – Main

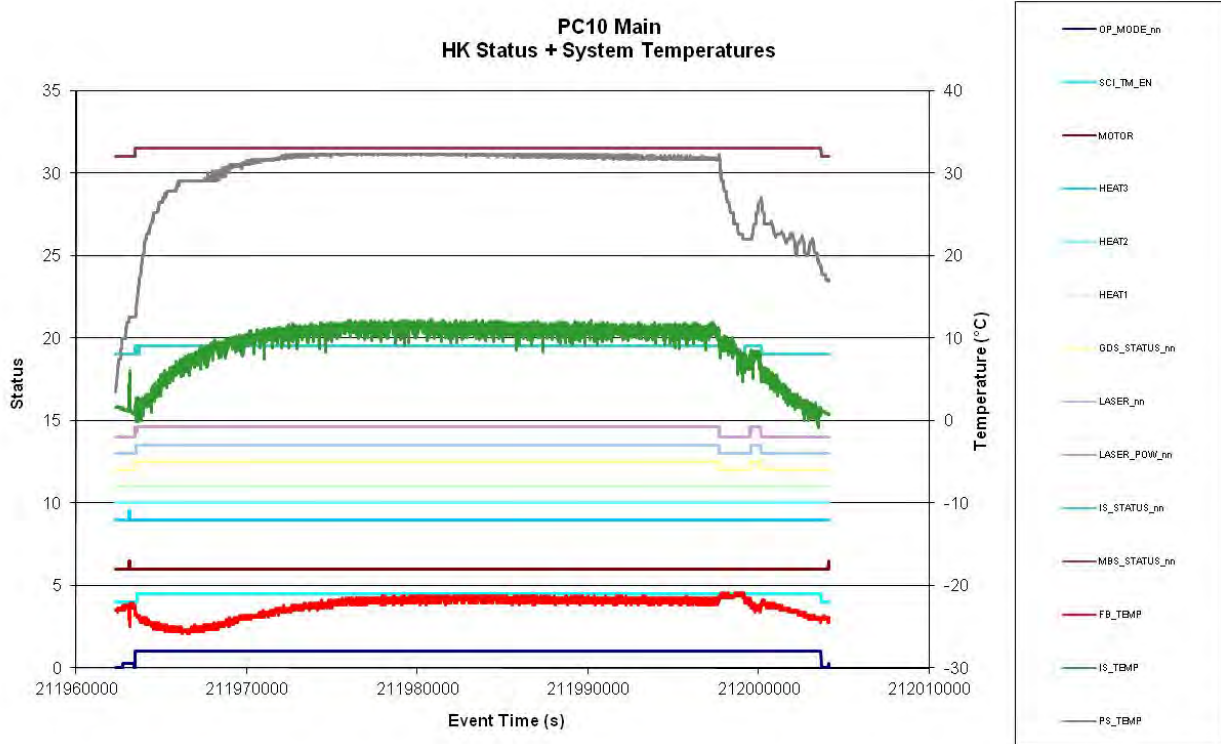
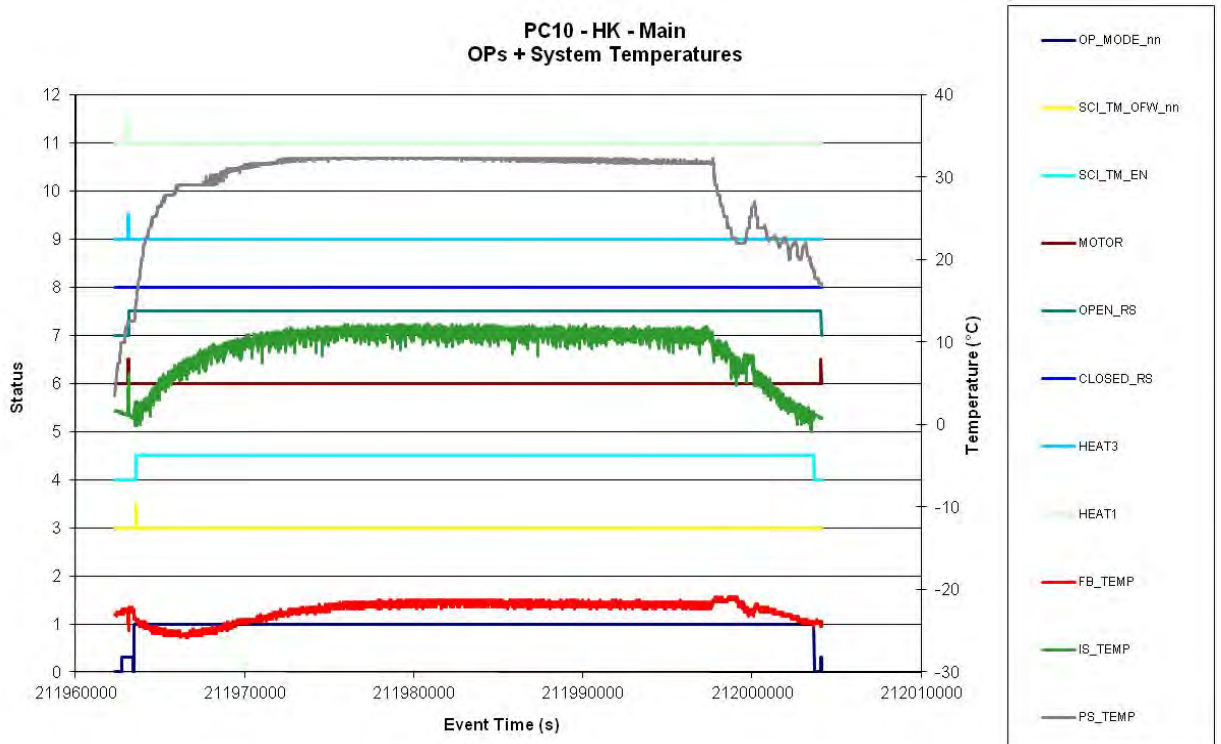


Figure 6.1-6. Operation Status versus Temperatures of system elements – Main
In the diagram are reported operative parameters with relevant variations.



6.2 GRAIN DETECTION SYSTEM (GDS)

6.2.1 GDS – Status

Figure 6.2-1. GDS Operation Status vs. time – Main

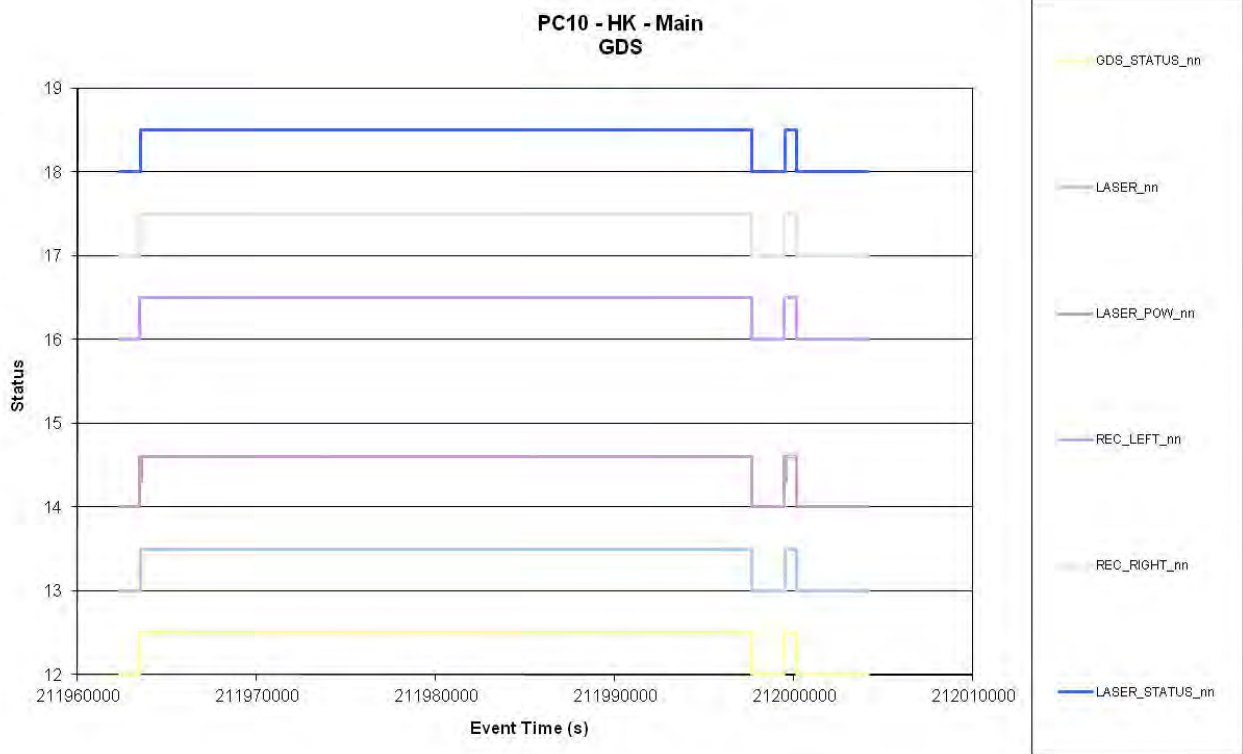


Figure 6.2-2. GDS Thresholds change vs. time – Main

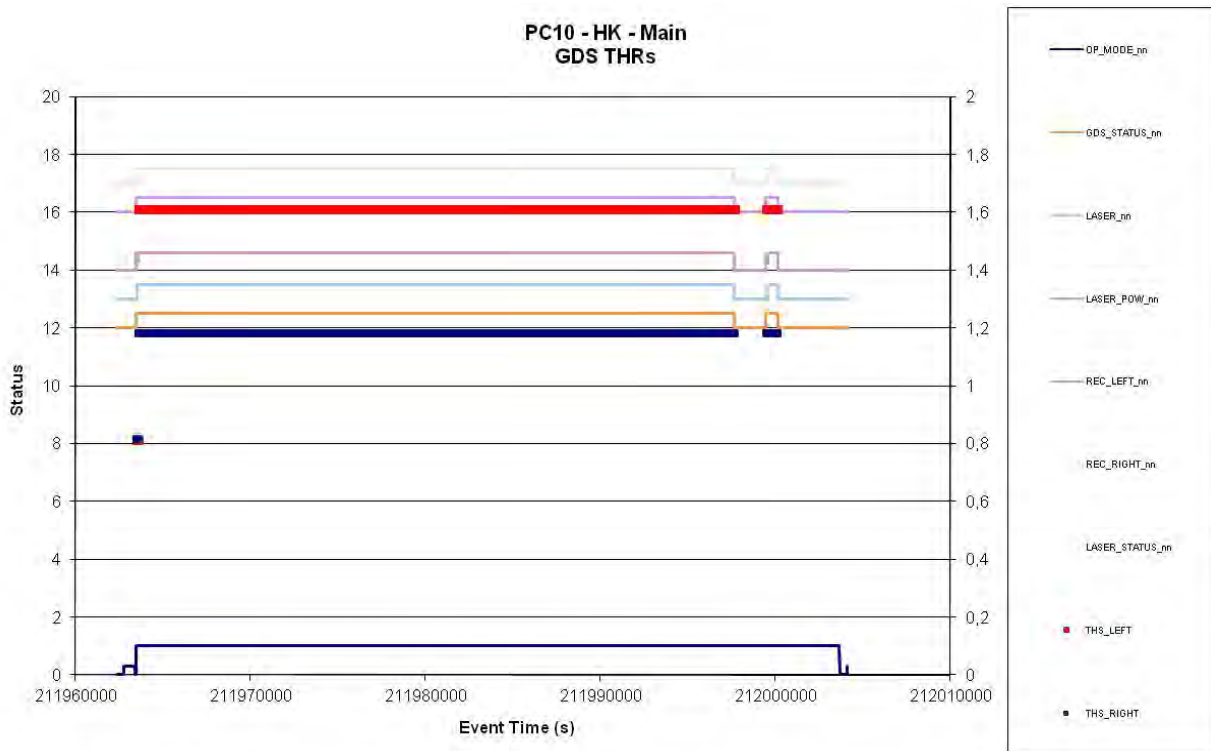


Figure 6.2-3. GDS Laser Temperatures vs. time- Main

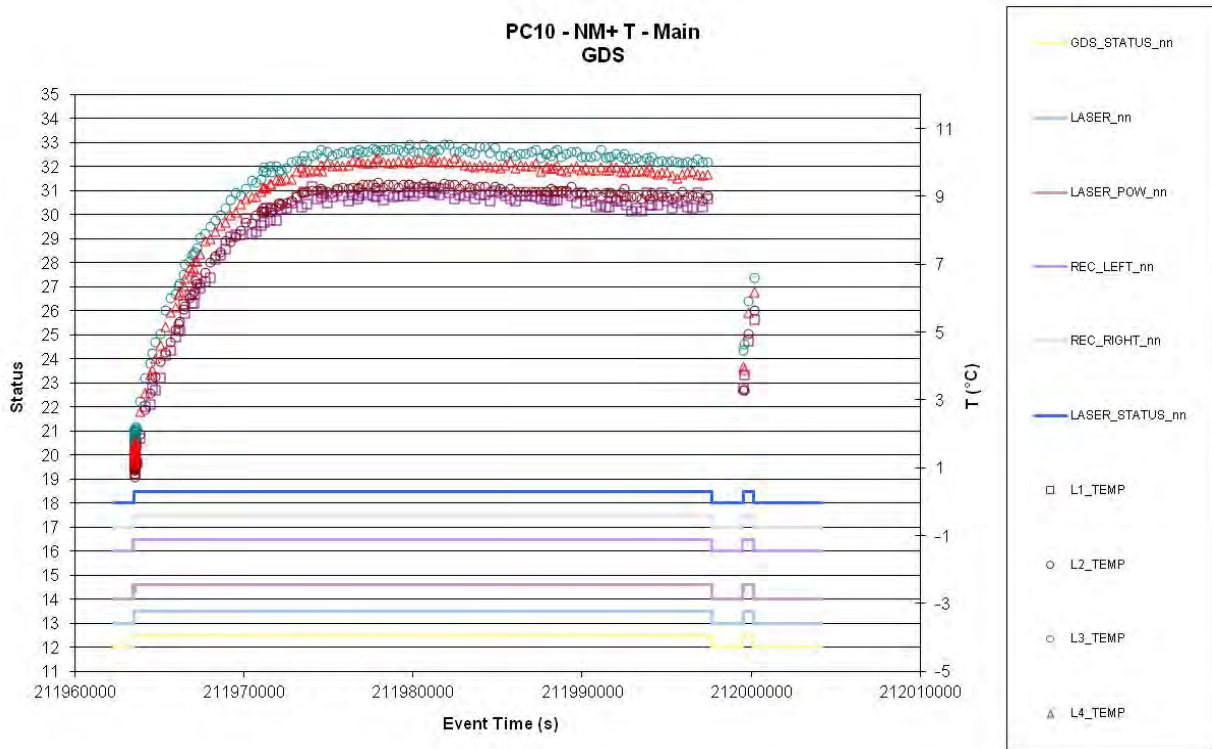


Figure 6.2-4. GDS Laser Monitor vs. time- Main

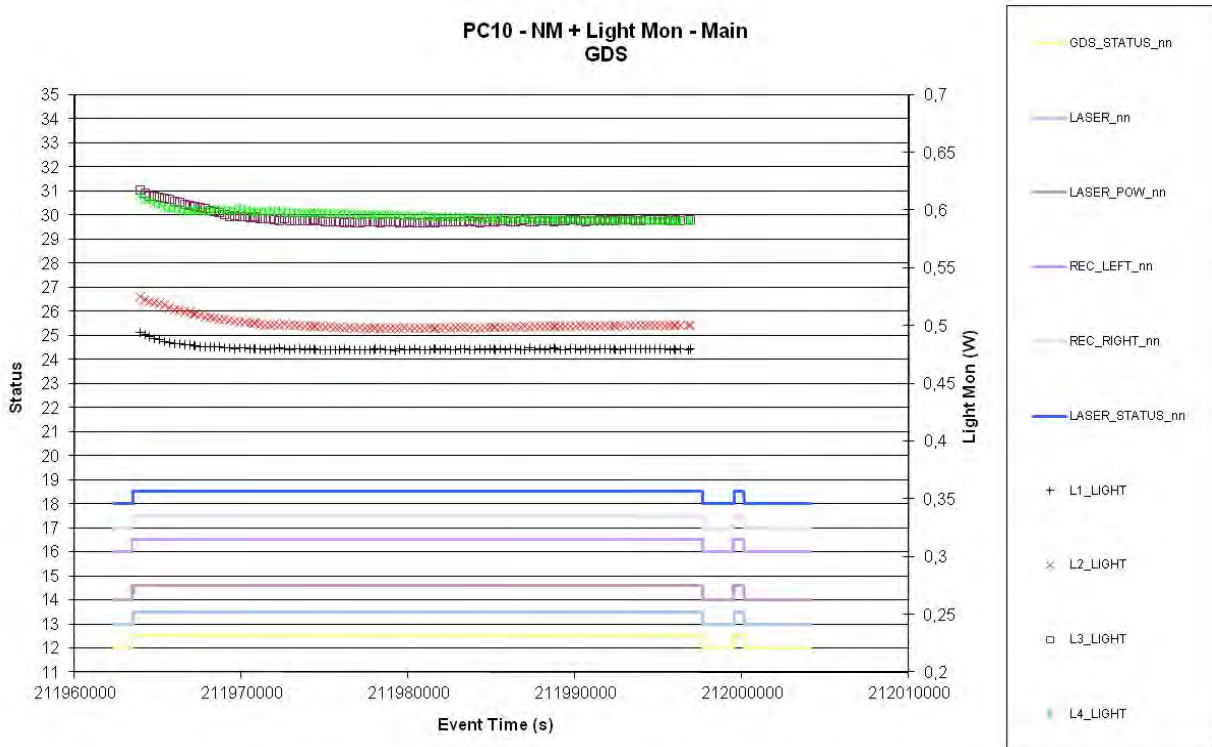


Figure 6.2-5. Lasers Light Monitor versus Temperature (HK, HK-SCI, SCI) – Main

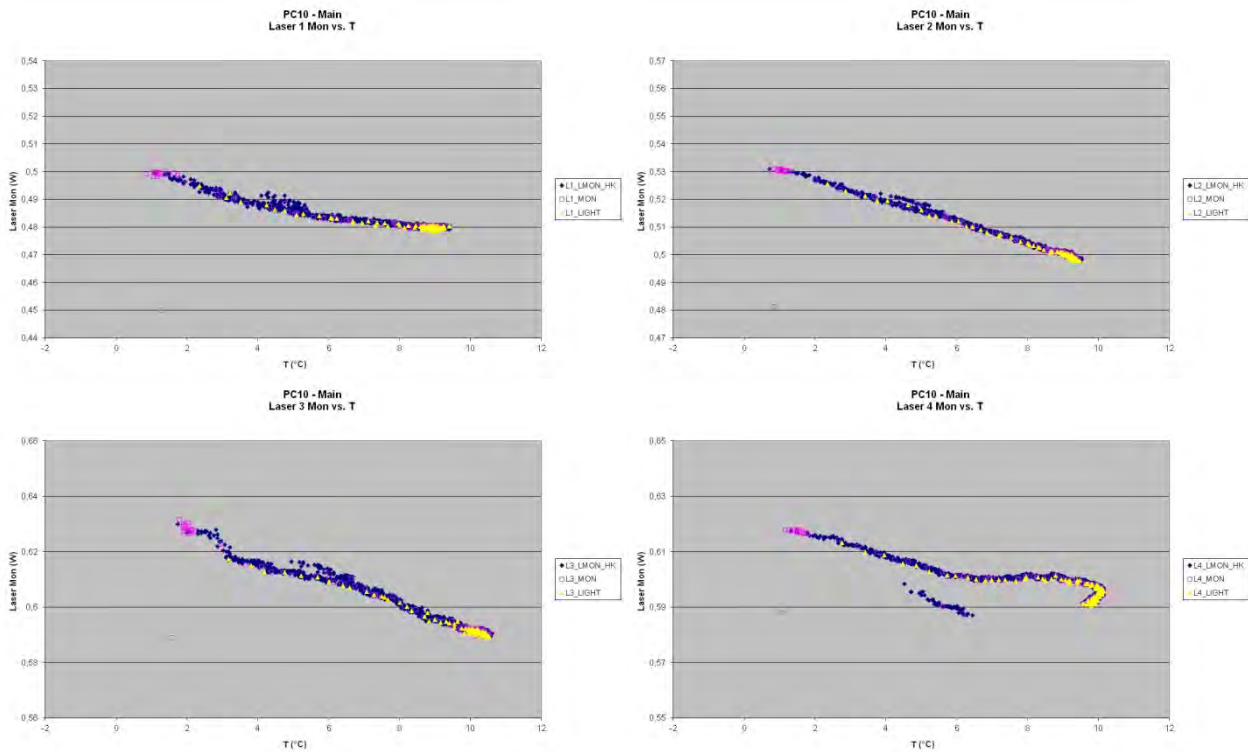
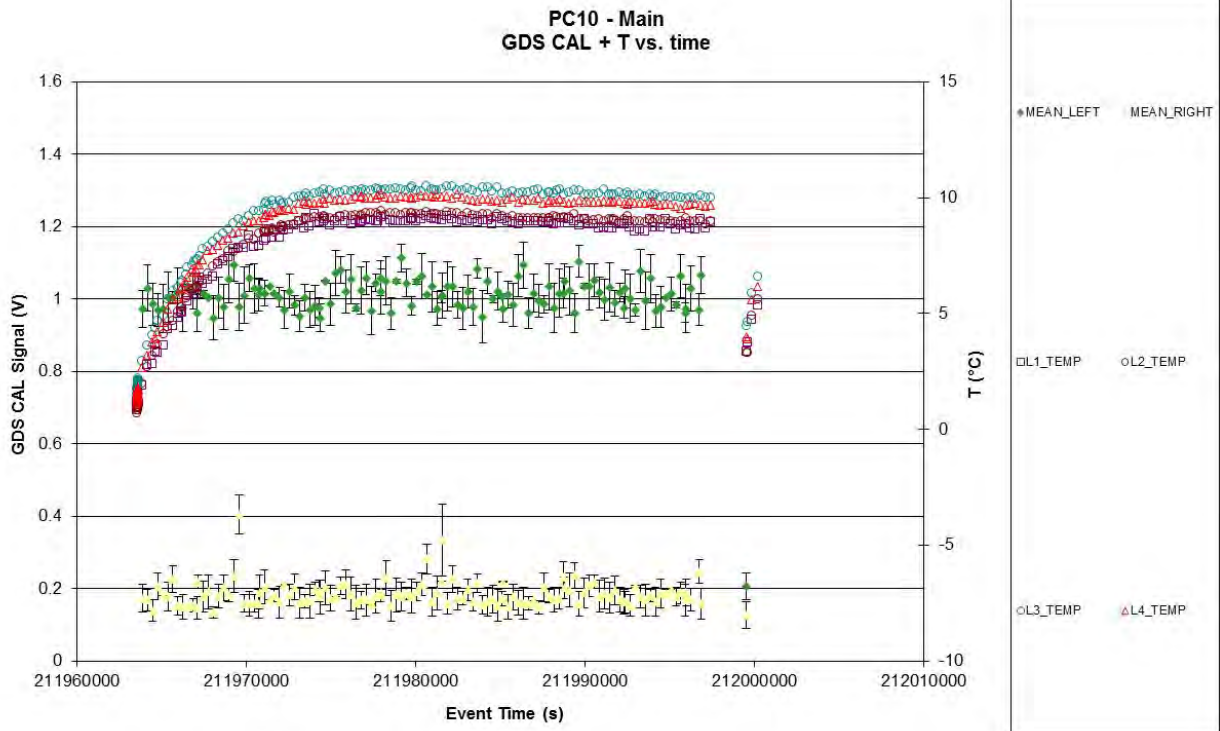


Figure 6.2-6. GDS Calibration values vs. time– Main



6.3 IMPACT SENSOR (IS)

6.3.1 IS - Status

Figure 6.3-1. IS Operation Status vs. time - Main

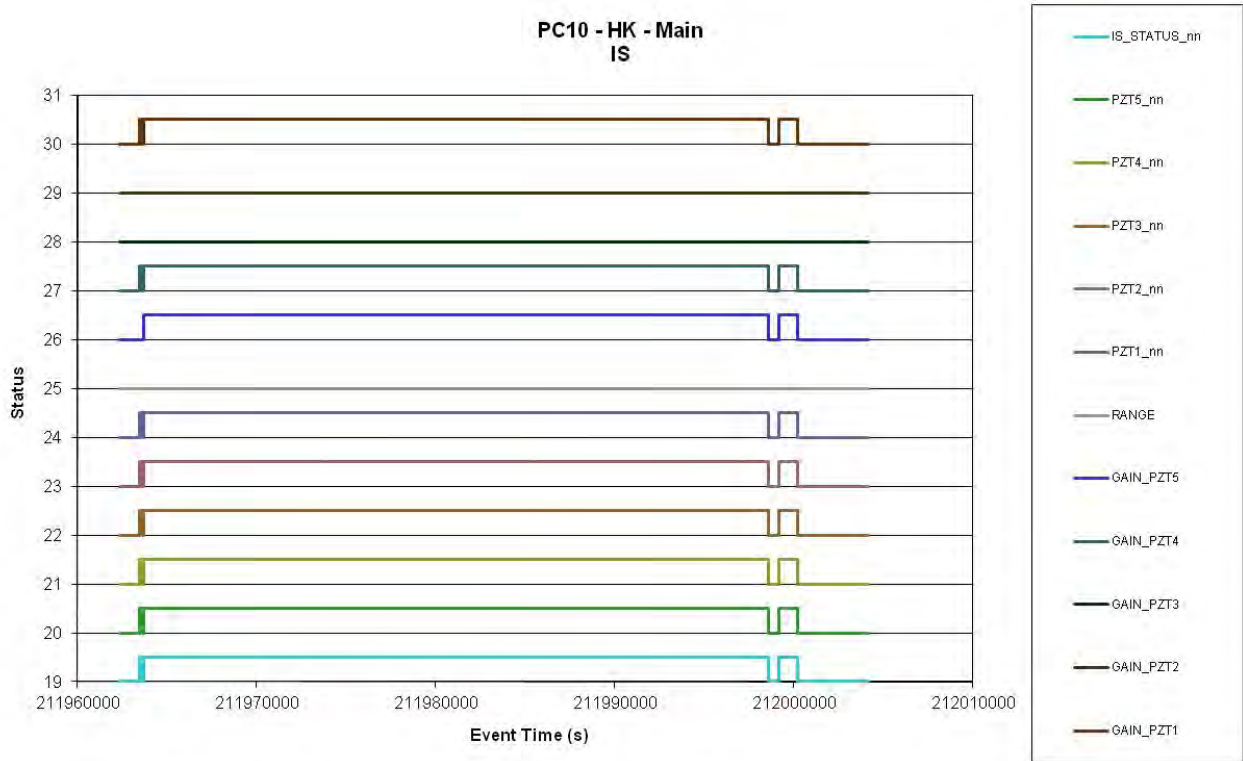


Figure 6.3-2. IS PZT 3 Thresholds change vs. time - Main

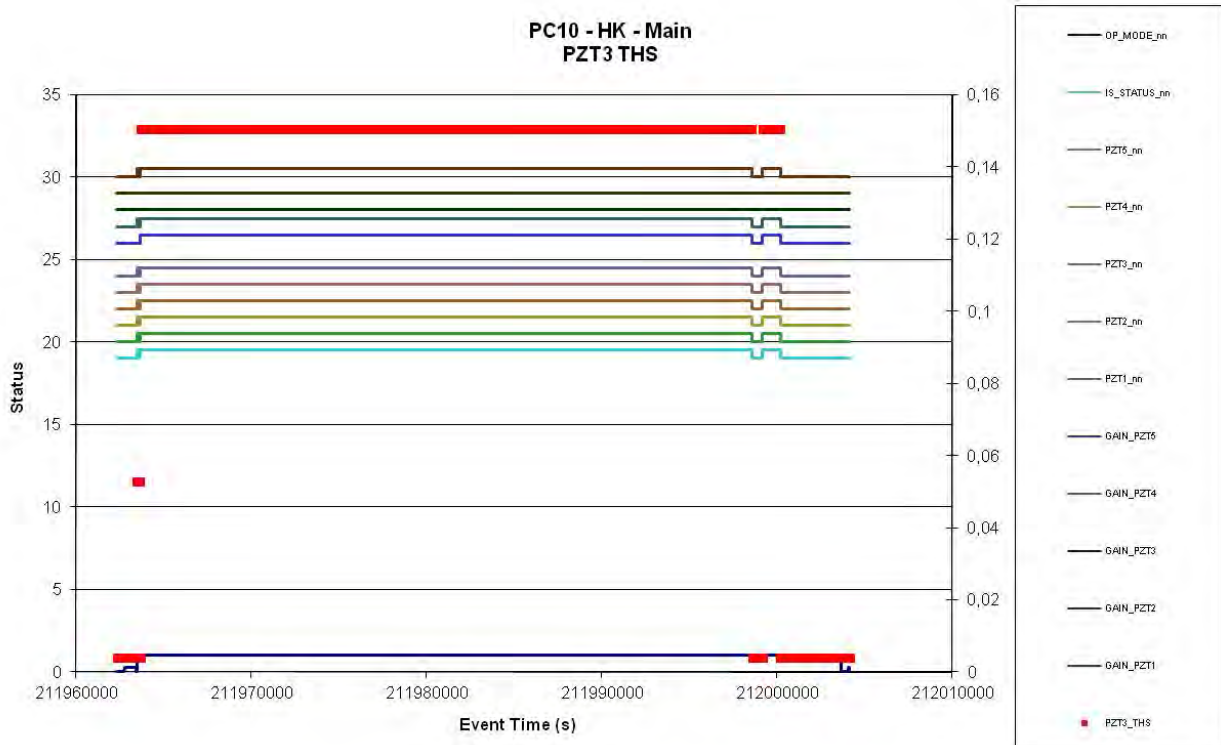


Figure 6.3-3. IS PZT 5 Thresholds change vs. time – Main

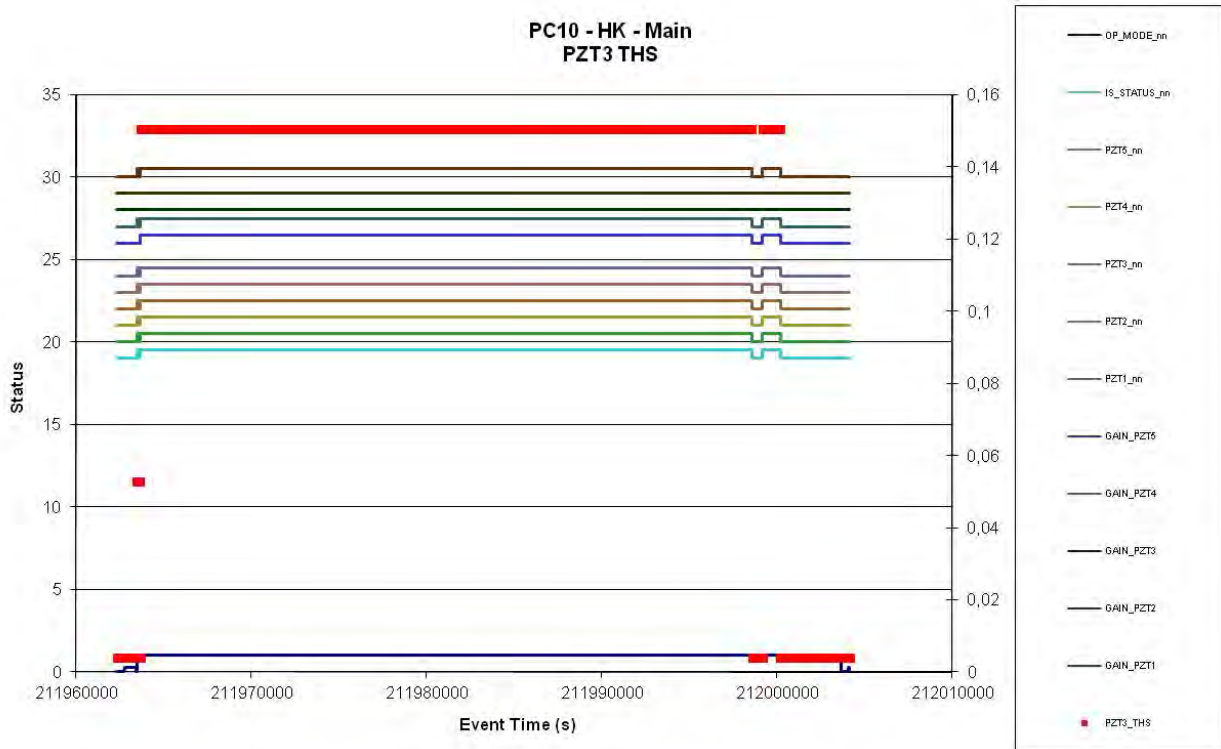
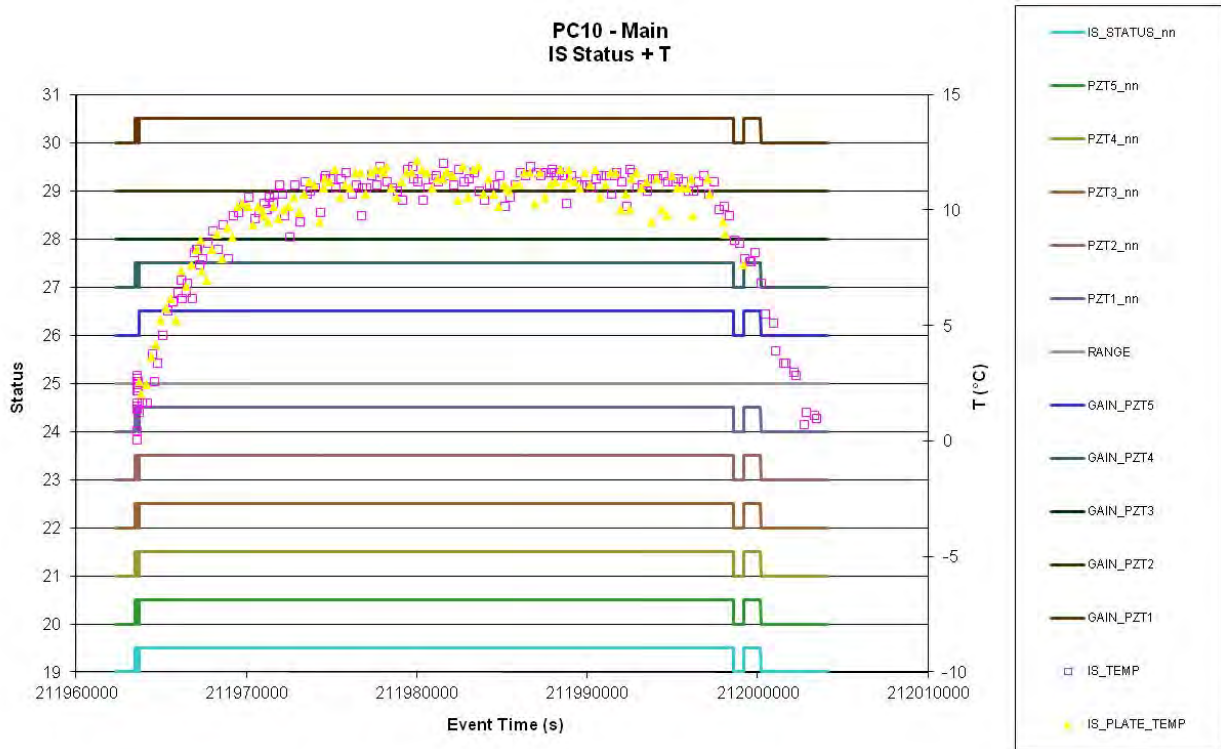


Figure 6.3-4. IS Temperature vs. time (HK, HK-SCI, SCI) – Main



6.3.1.1 CAL

Figure 6.3-5. PZTs Mean and St Dev. CAL vs. time – Main

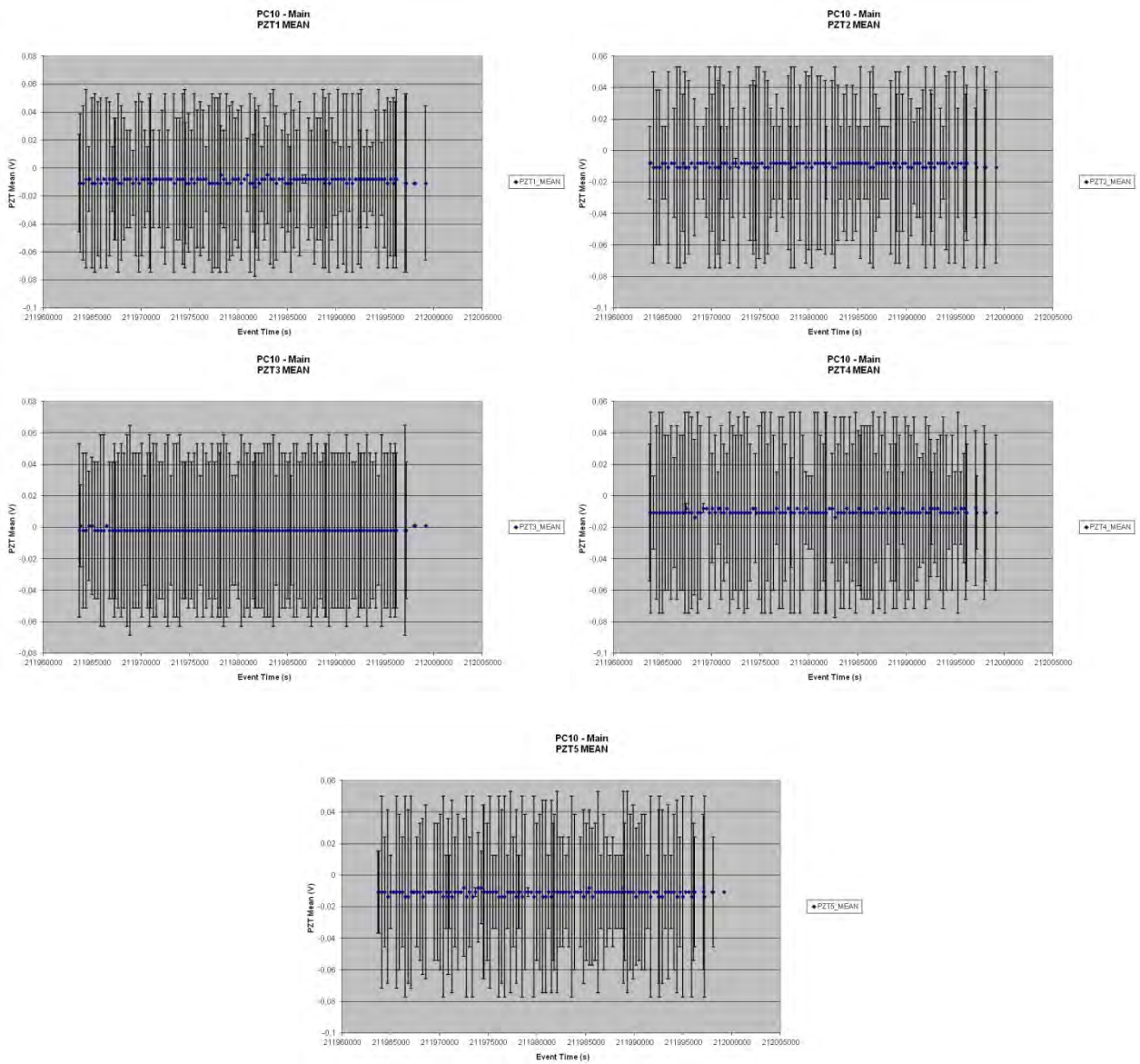


Figure 6.3-6. Reference Voltages for IS calibration vs. time – Main
Voltages values for the calibrator don't show level variation

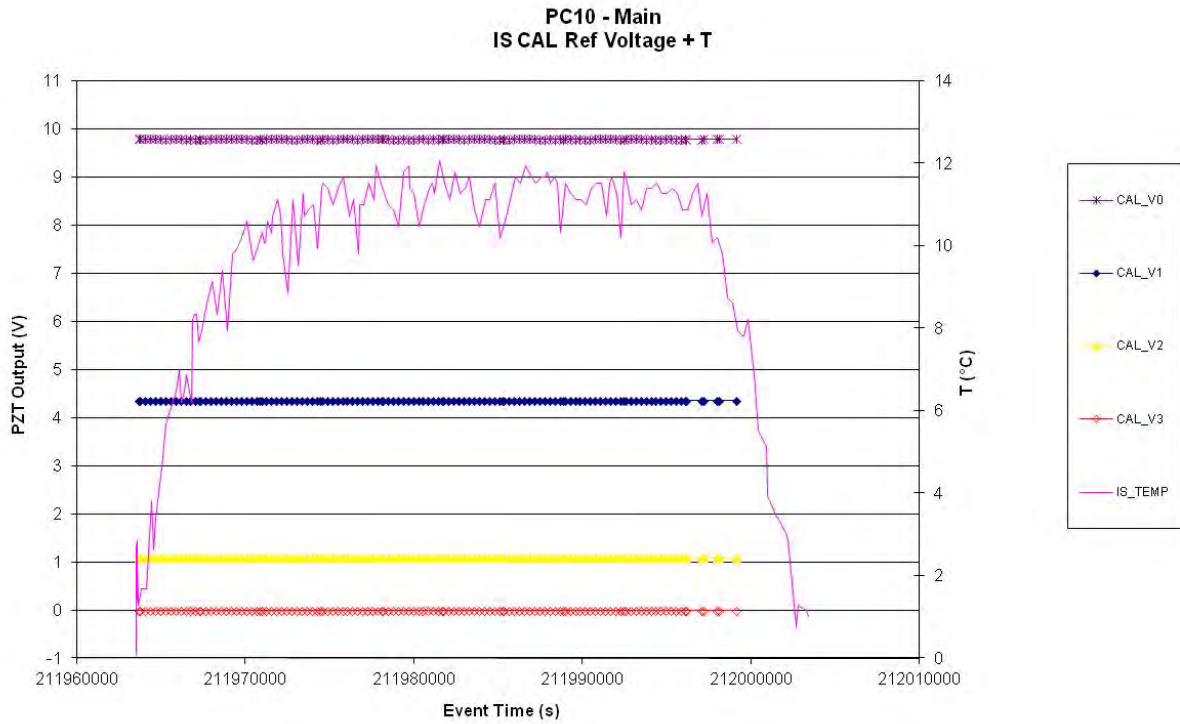
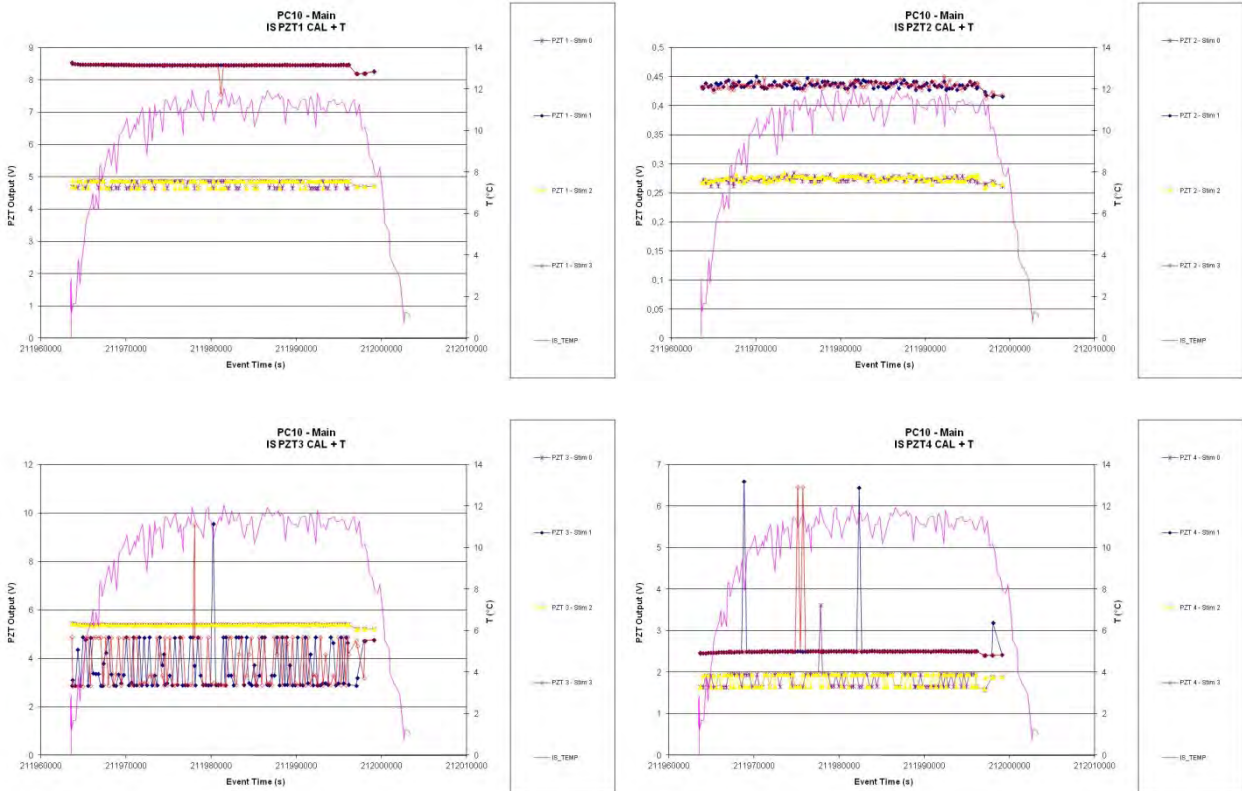
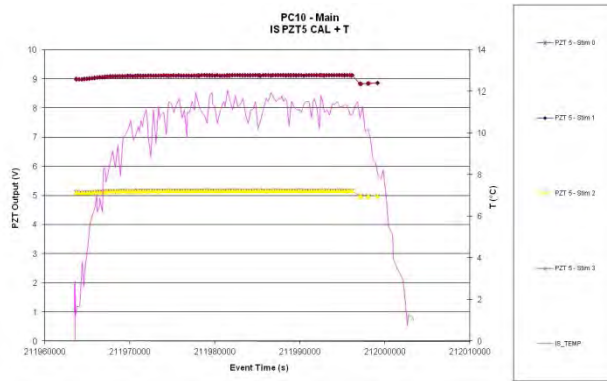


Figure 6.3-7. PZTs CAL Signal vs. time – Main





6.4 MICRO BALANCE SYSTEM (MBS)

6.4.1 MBS – Status

Figure 6.4-1. MBS Operation Status vs. time – Main

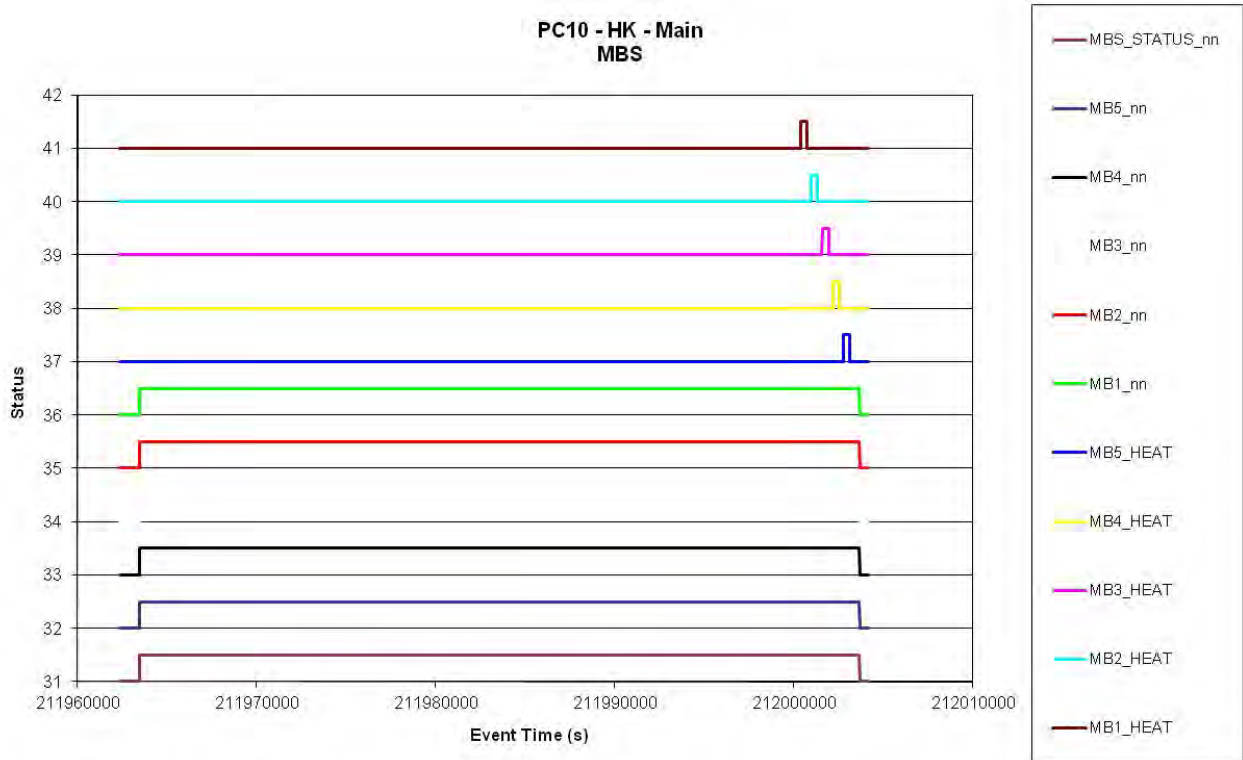
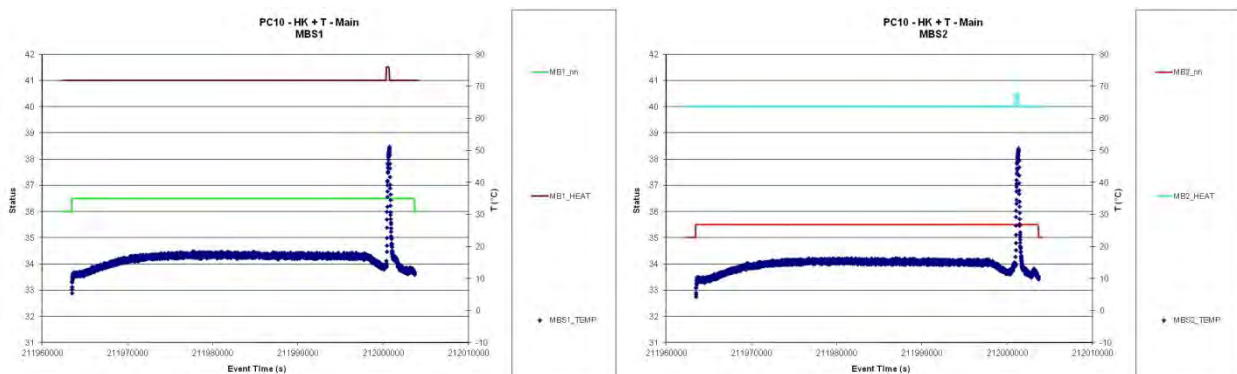


Figure 6.4-2. MBSs Temperature vs. time (SCI) – Main



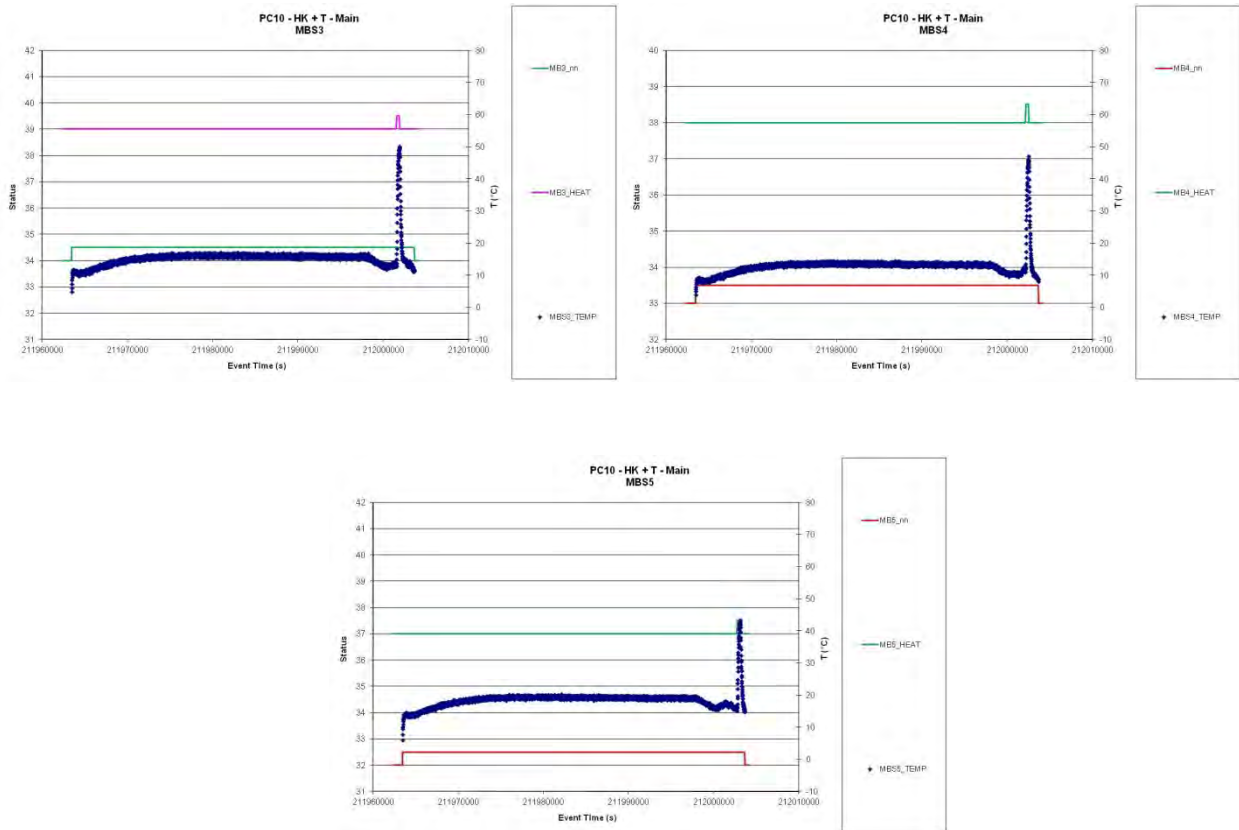
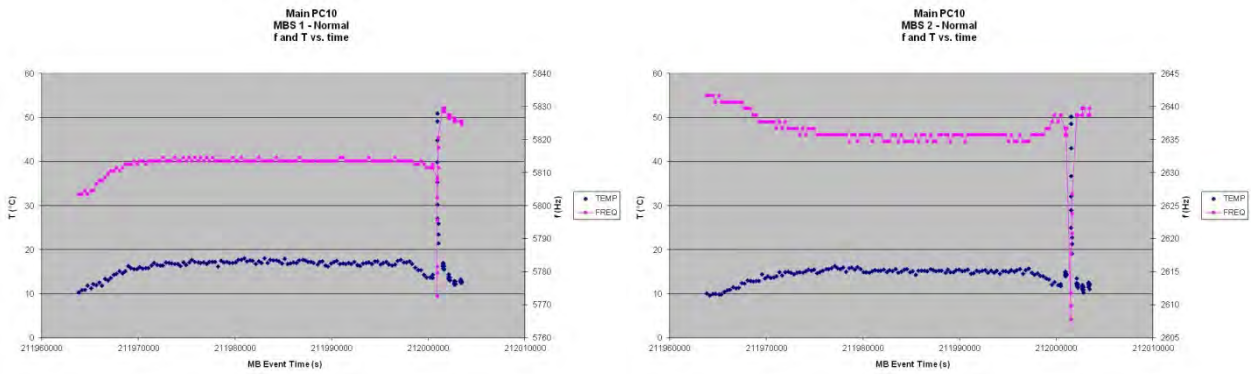
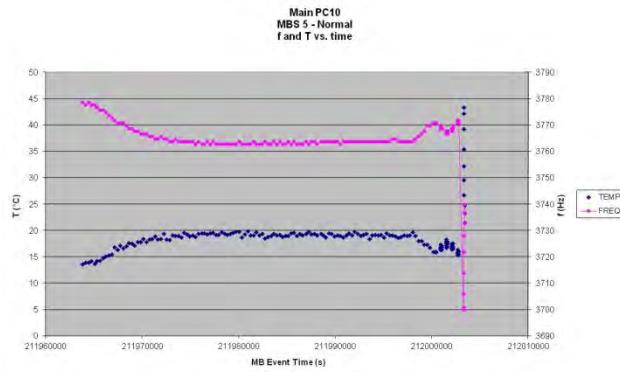
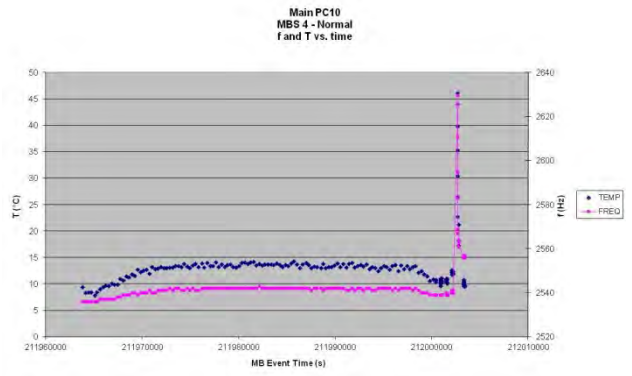
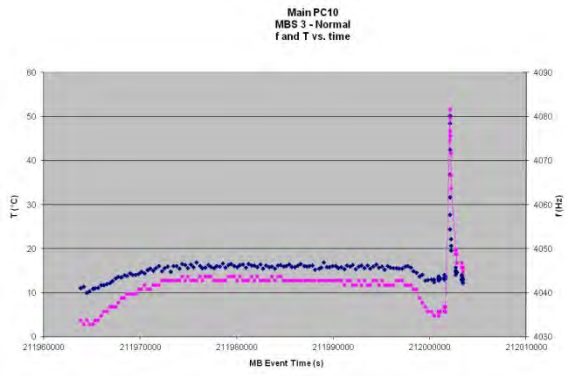


Figure 6.4-3. MBSs Frequency and Temperature vs. time– Main





7. PC10 DATA ANALYSIS – RED INTERFACE (GD01)

7.1 GIADA STATUS

Figure 7.1-1. HK Status of GIADA vs. time – Red

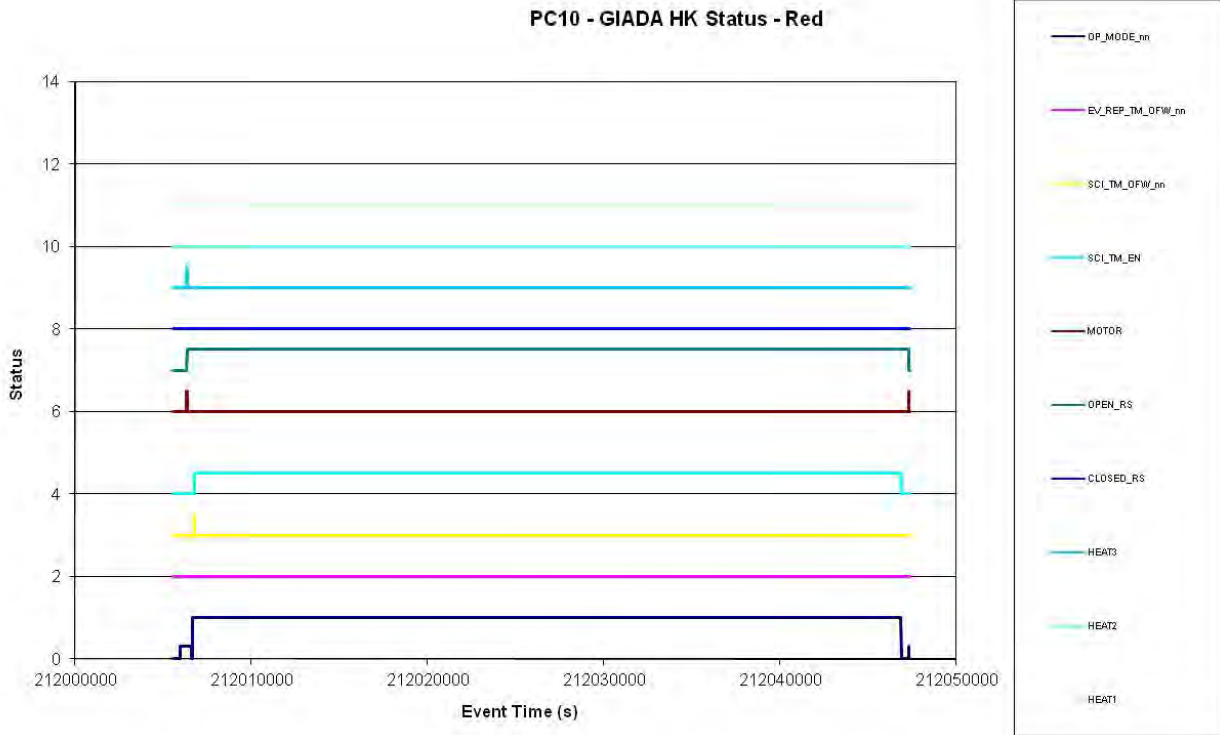


Figure 7.1-2. Power profile and Power Supply temperature vs. time - HK, Red

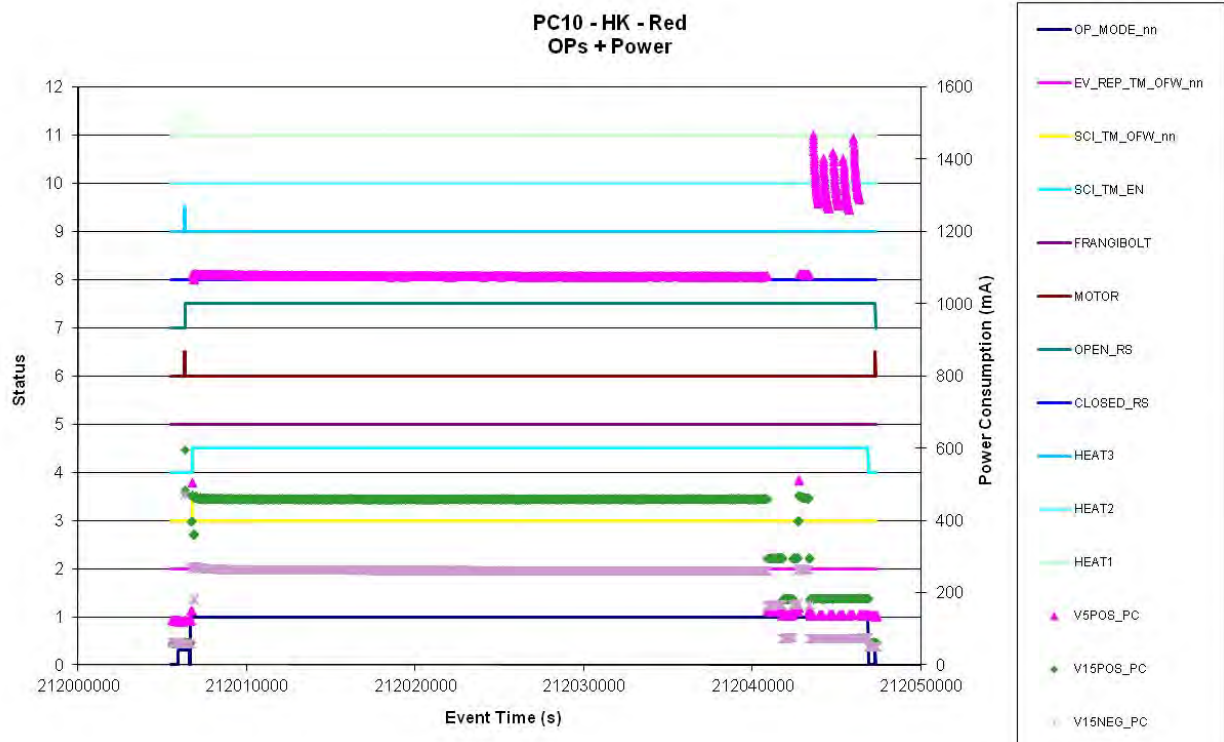


Figure 7.1-3. Evolution of temperatures of system elements vs. time - HK, Red

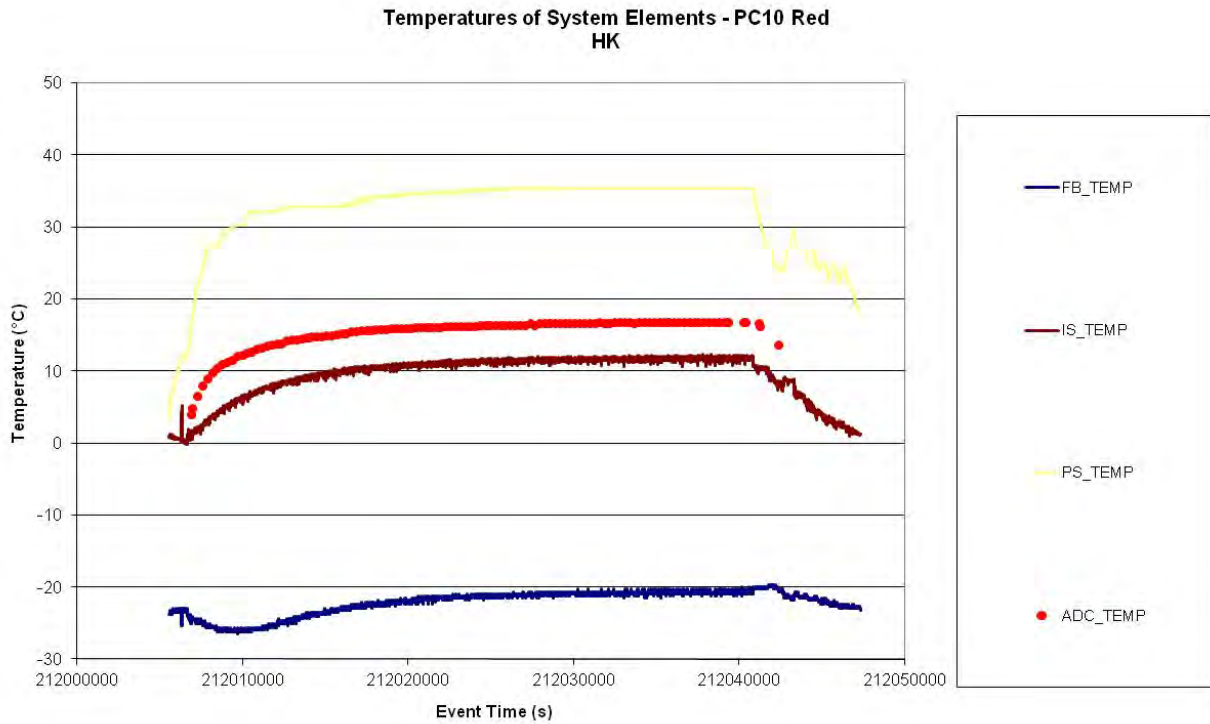


Figure 7.1-4. Evolution of temperatures of sub-systems vs. time with instrument in Normal Mode- Red

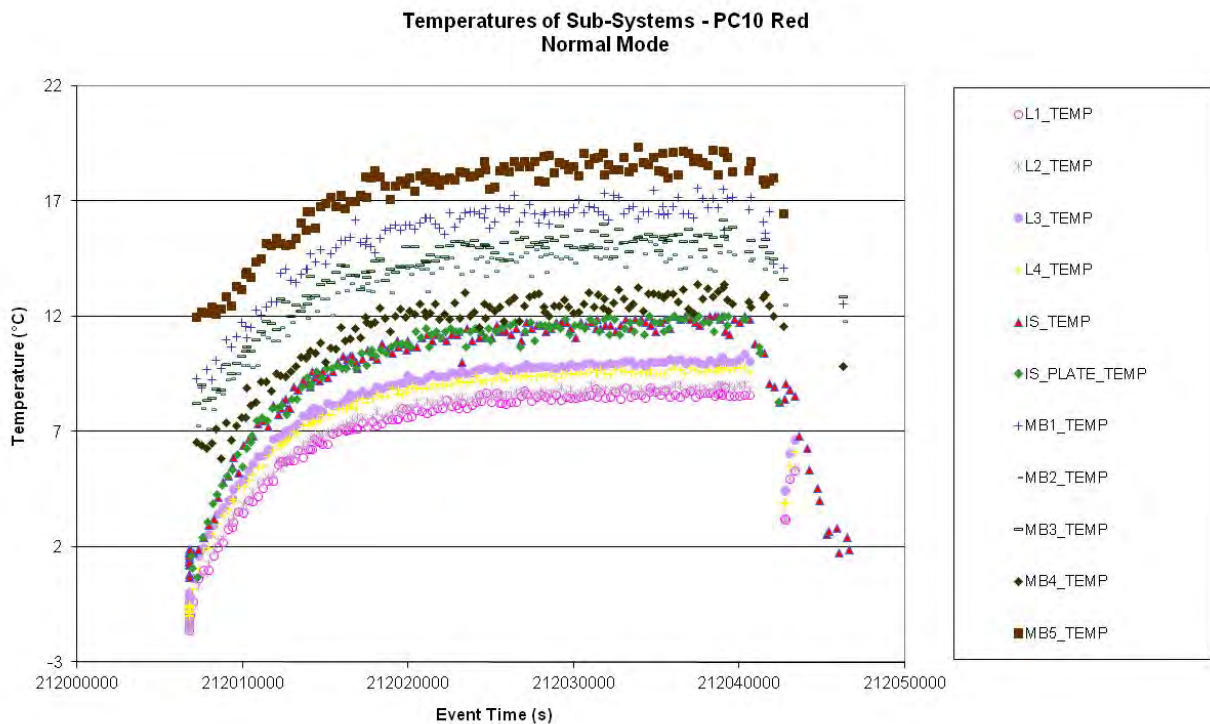


Figure 7.1-5. HK Status versus Temperatures of system elements – Red

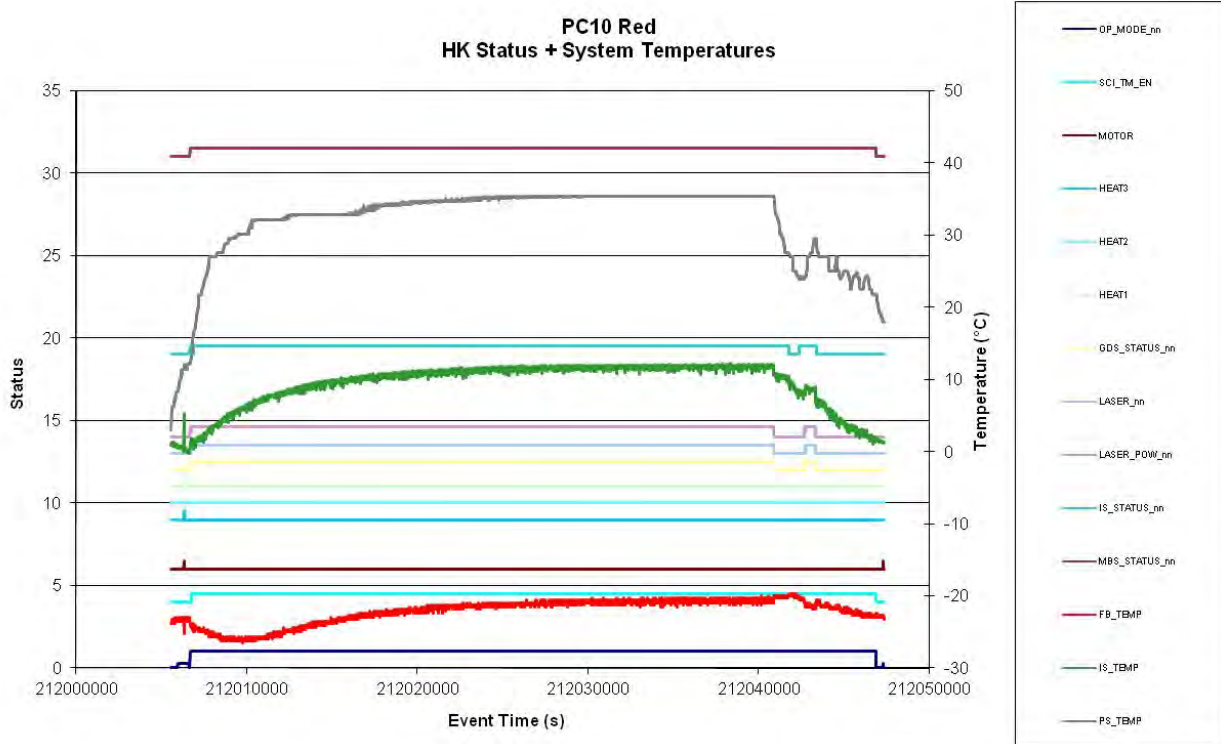
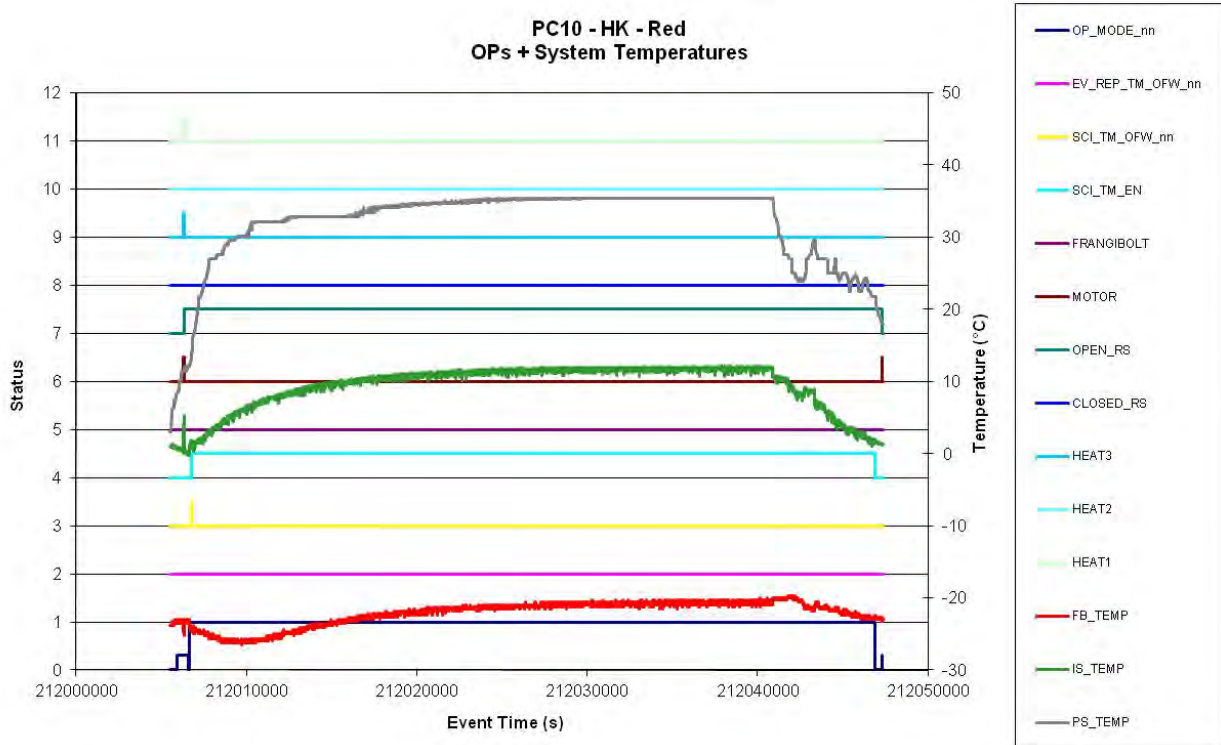


Figure 7.1-6. Operation Status versus Temperatures of system elements – Red
In the diagram are reported operative parameters with relevant variations.



7.2 GRAIN DETECTION SYSTEM (GDS)

7.2.1 GDS – Status

Figure 7.2-1. GDS Operation Status vs. time – Red

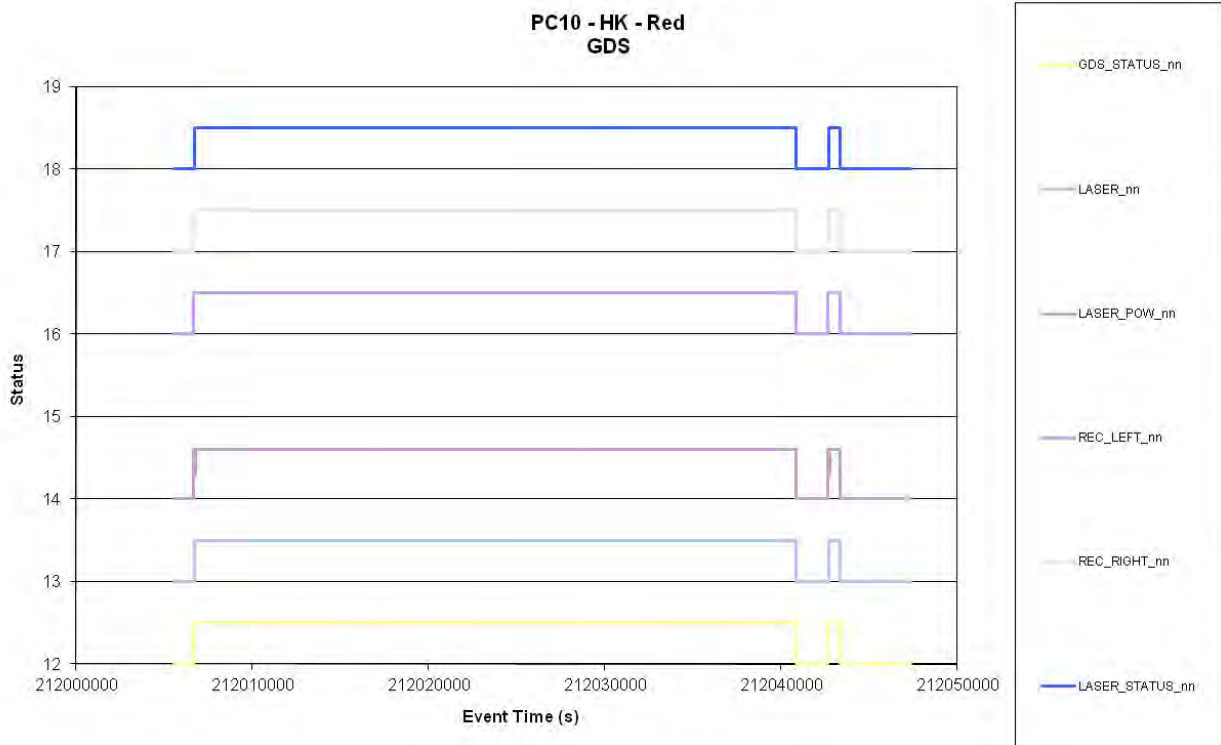


Figure 7.2-2. GDS Thresholds change vs. time – Red

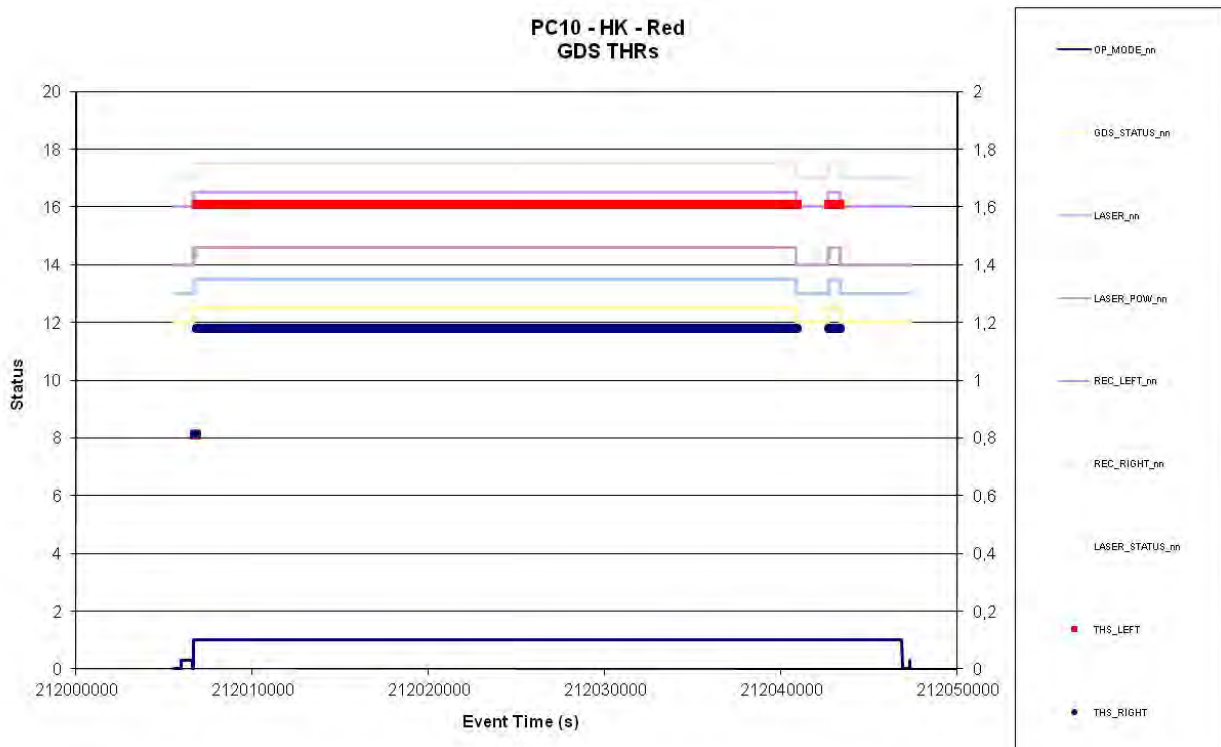


Figure 7.2-3. GDS Laser Temperatures vs. time- Red

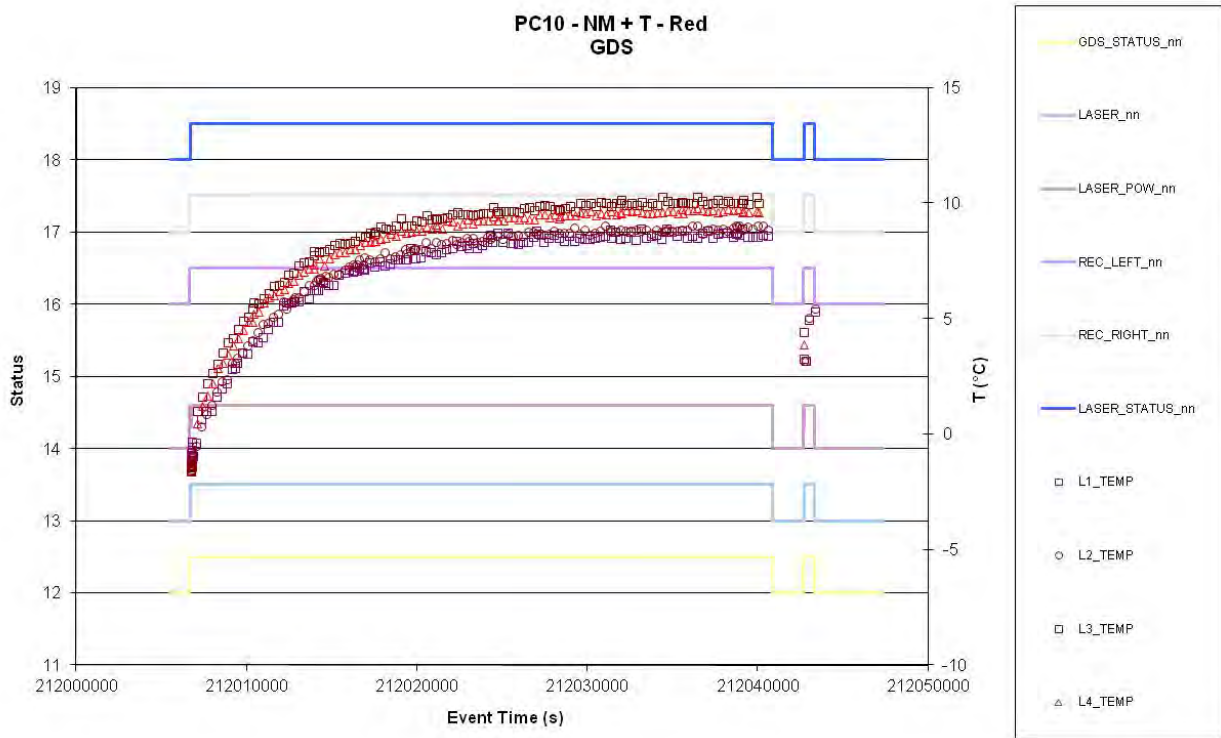


Figure 7.2-4. GDS Laser Monitor vs. time- Red

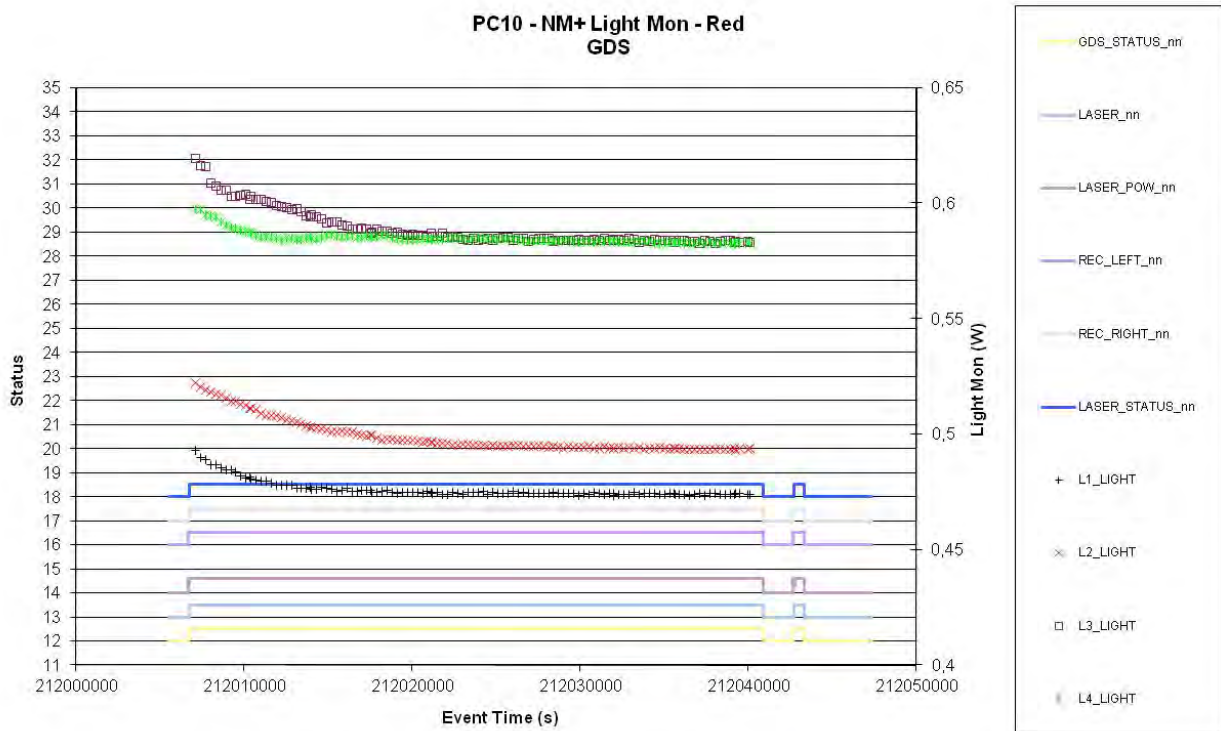


Figure 7.2-5. Lasers Light Monitor versus Temperature (HK, HK-SCI, SCI) –Red

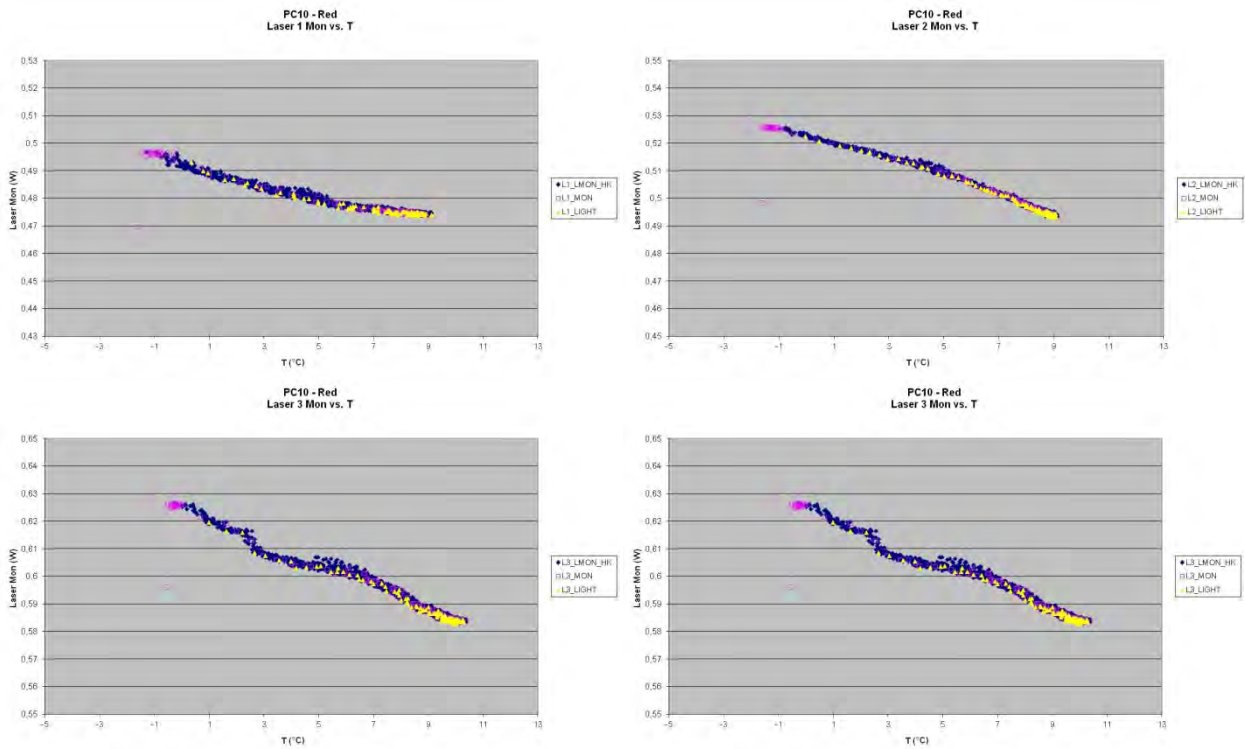
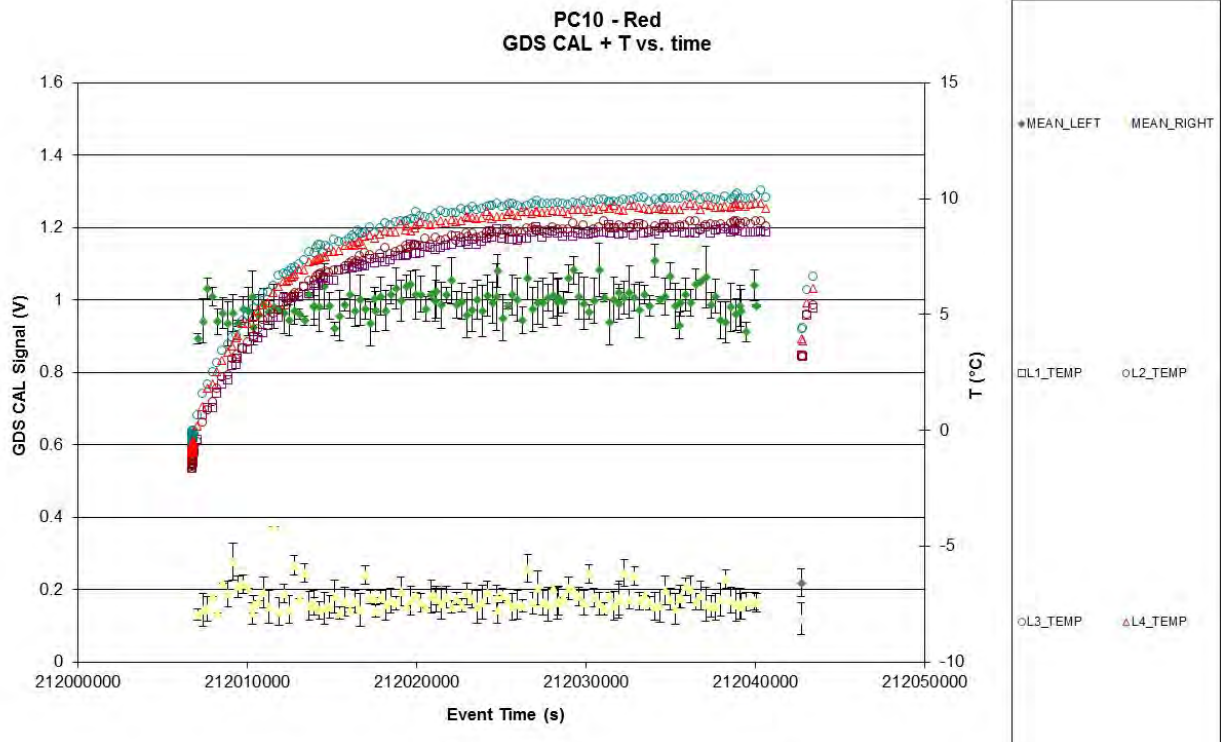


Figure 7.2-6. GDS Calibration values vs. time– Red



7.3 IMPACT SENSOR (IS)

7.3.1 IS - Status

Figure 7.3-1. IS Operation Status vs. time - Red

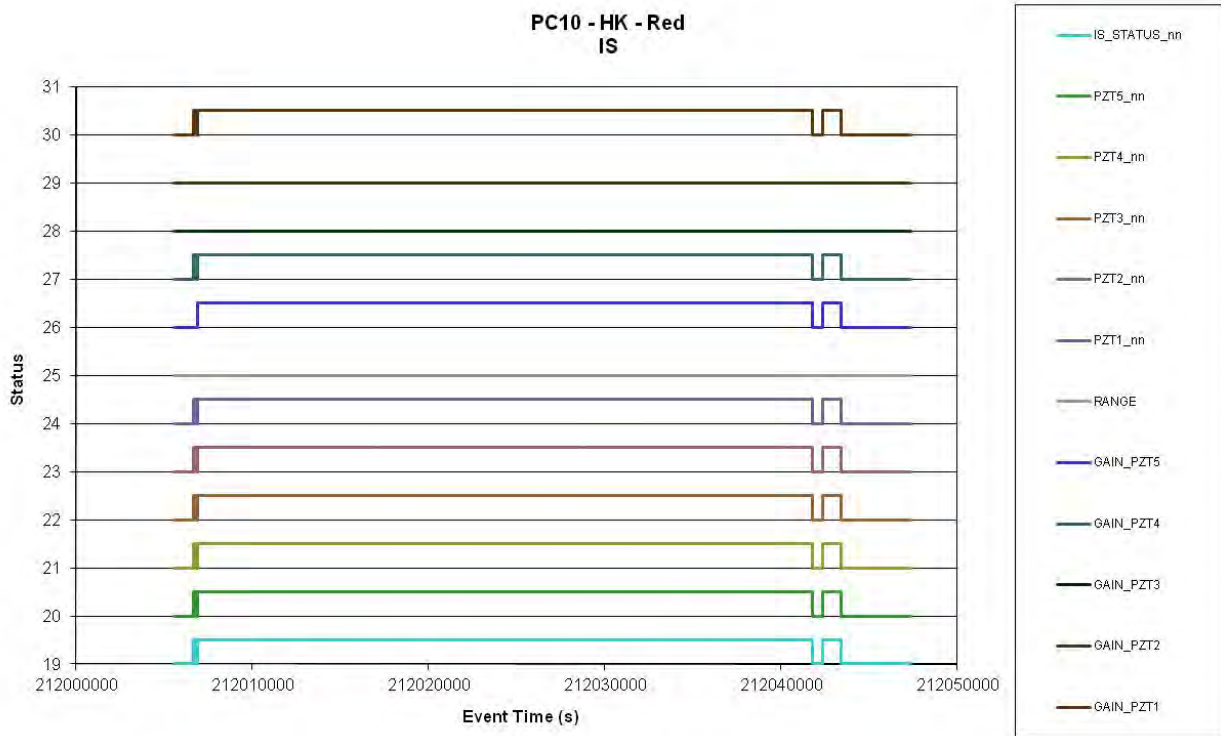


Figure 7.3-2. IS PZT 3 Thresholds change vs. time - Red

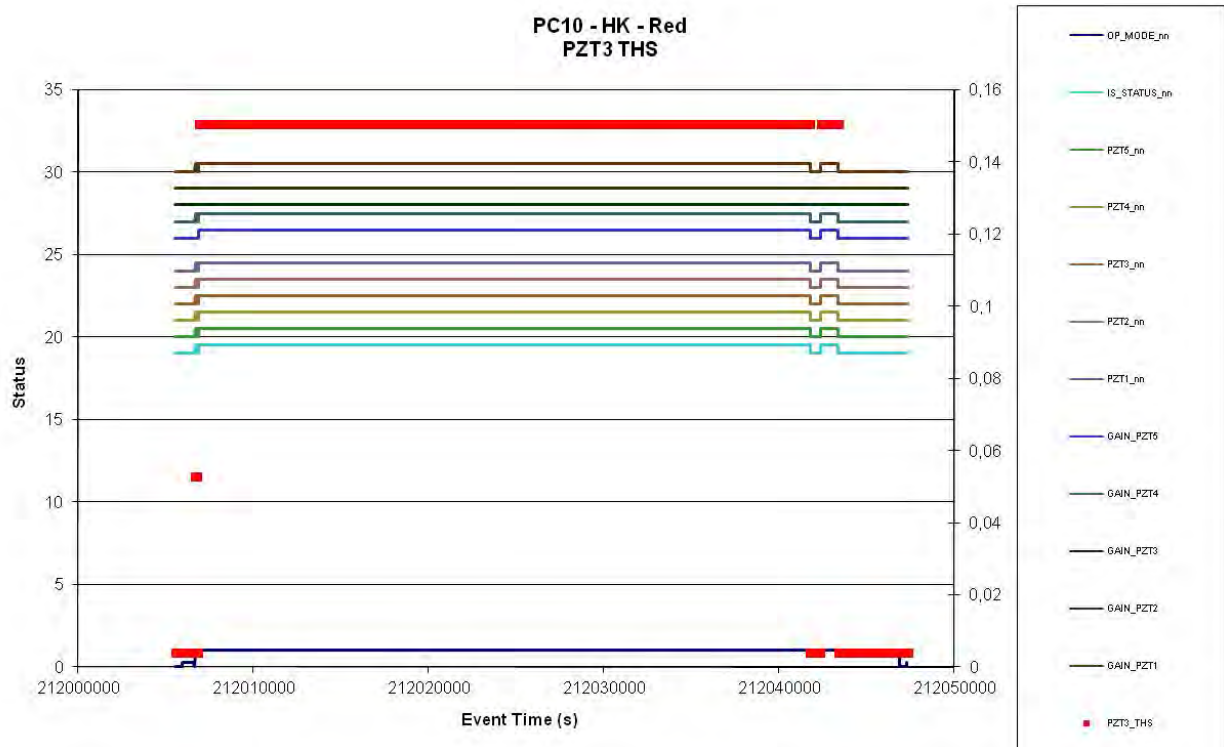


Figure 7.3-3. IS PZT 5 Thresholds change vs. time – Red

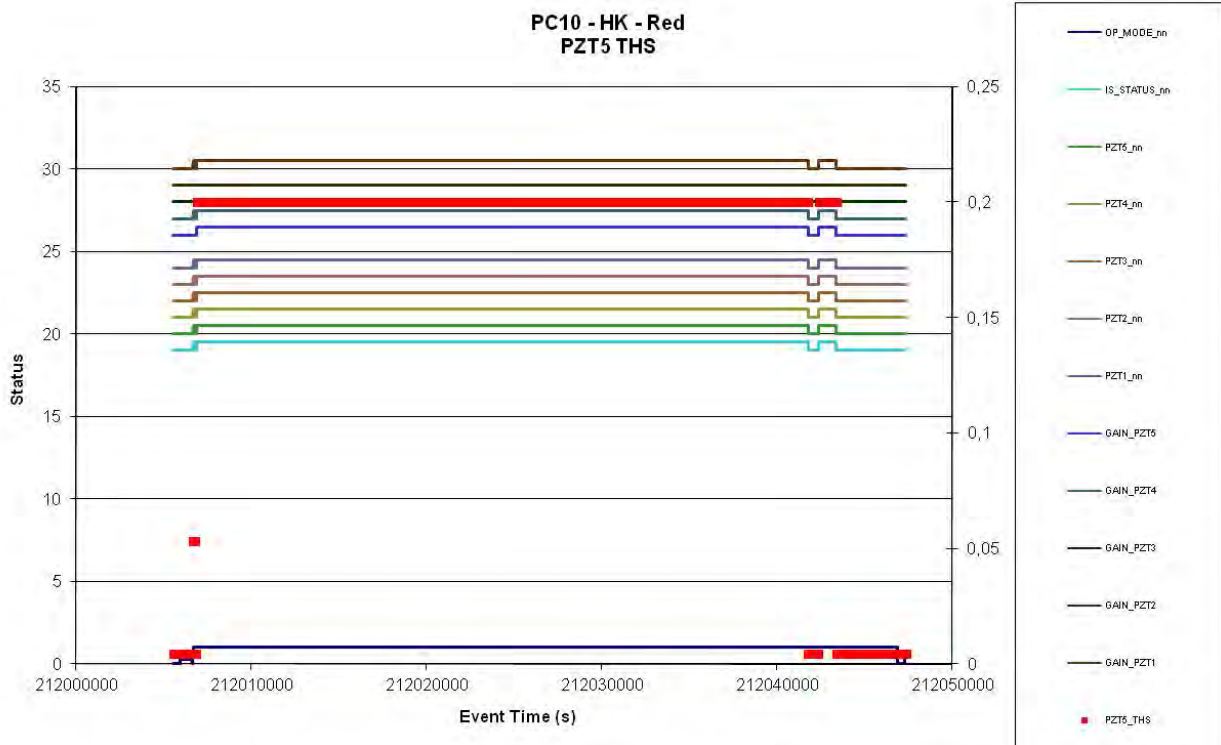
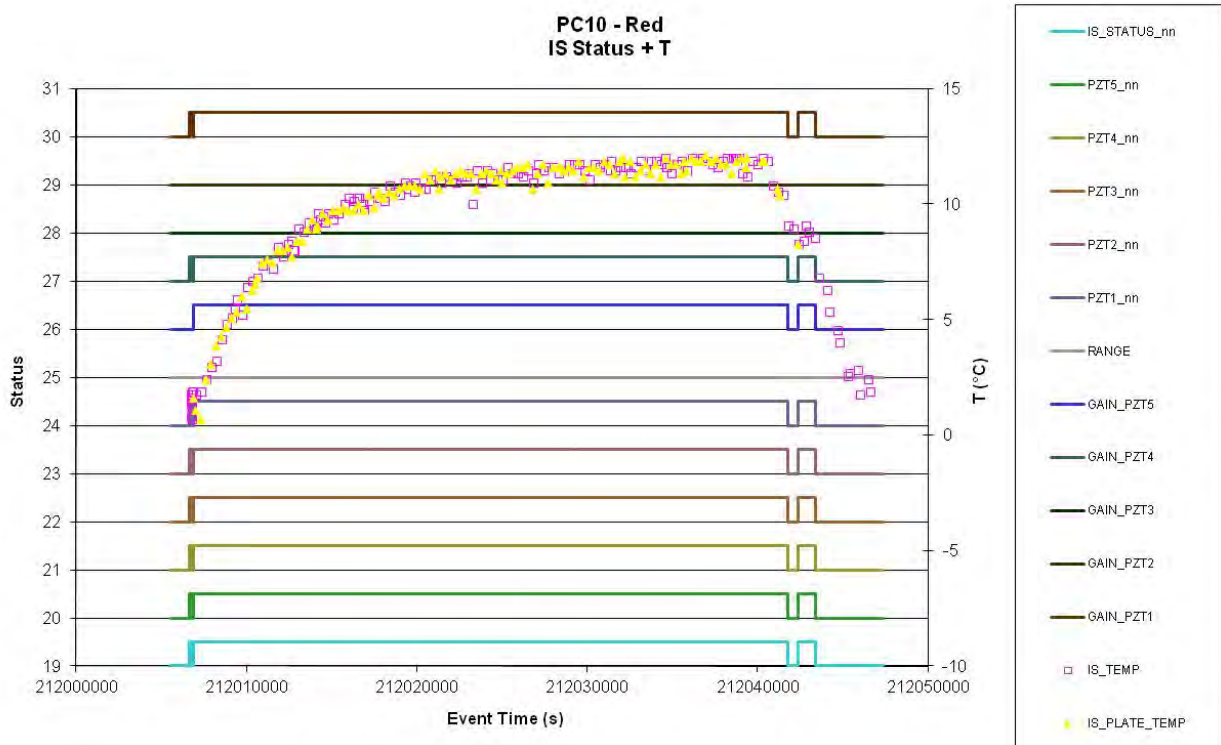


Figure 7.3-4. IS Temperature vs. time (HK, HK-SCI, SCI) – Red



7.3.1.1 CAL

Figure 7.3-5. PZTs Mean and St Dev. CAL vs. time – Red

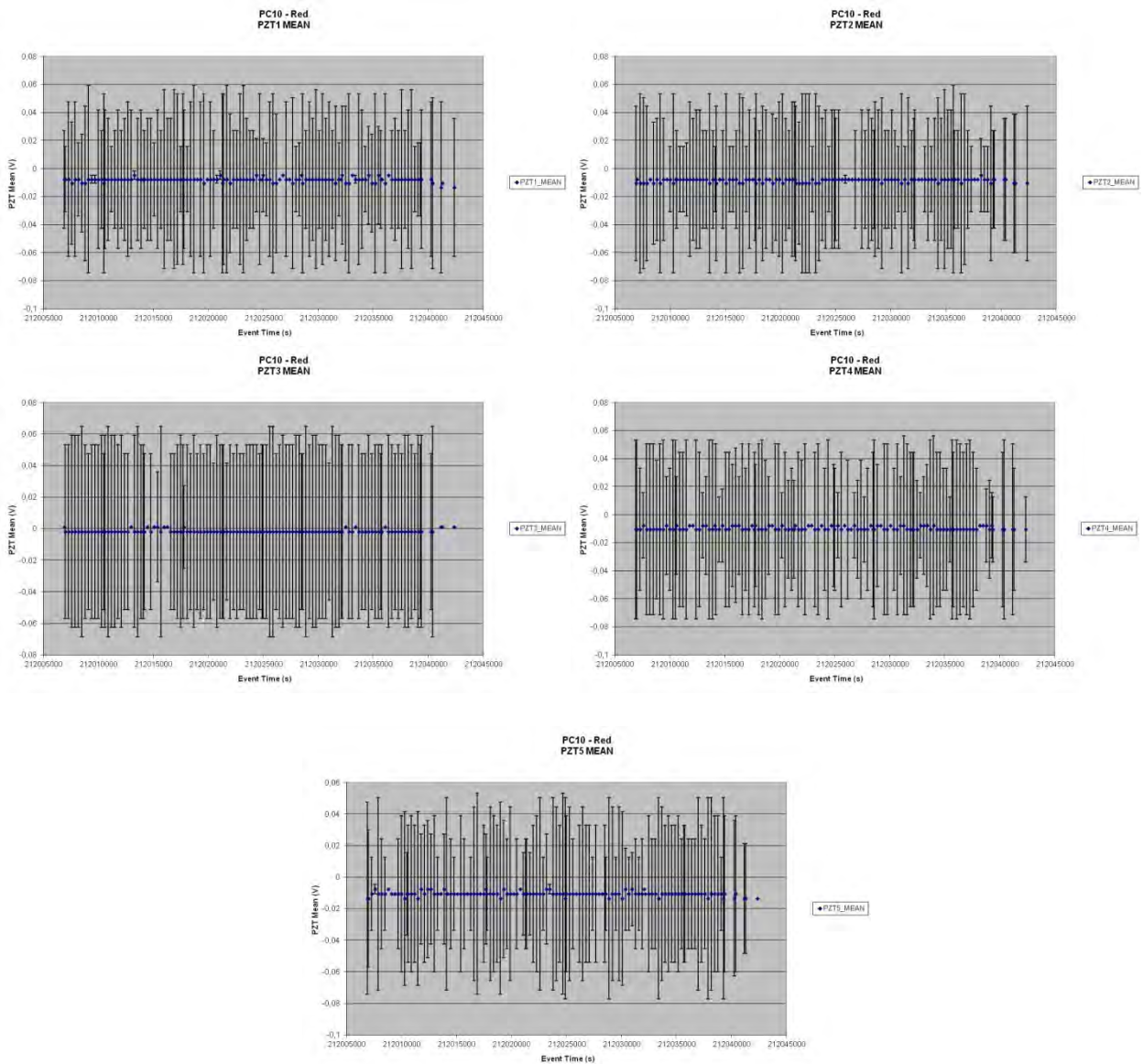


Figure 7.3-6. Reference Voltages for IS calibration vs. time – Red
Voltages values for the calibrator don't show level variation

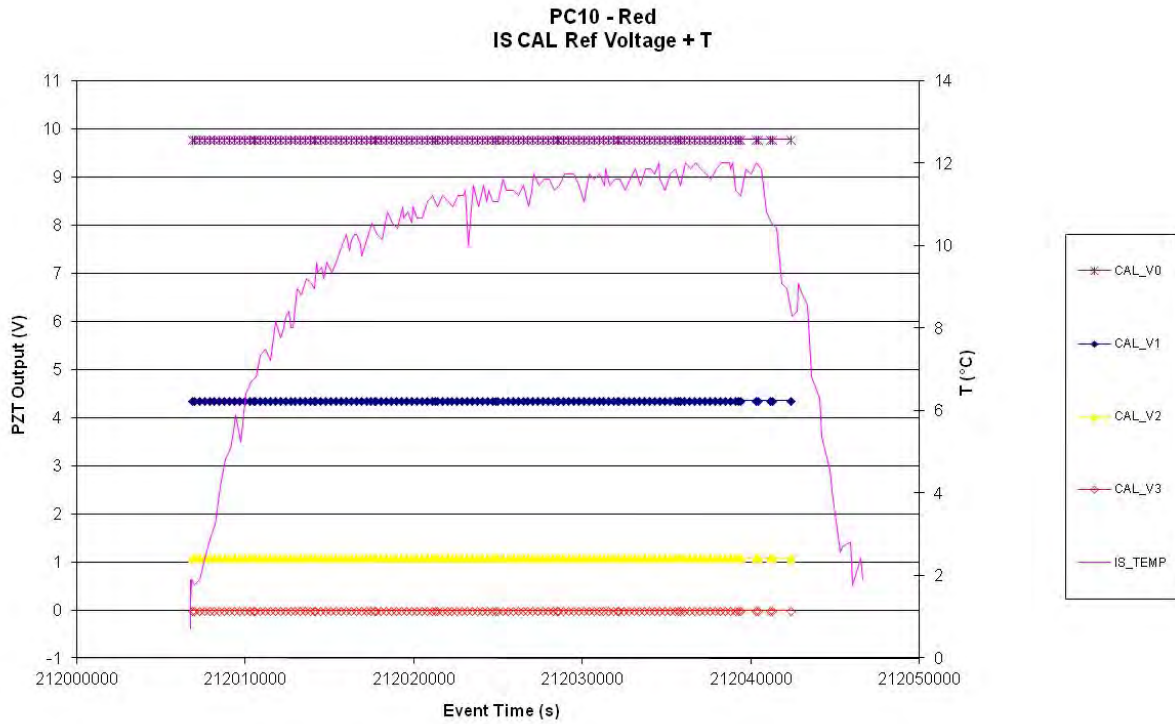
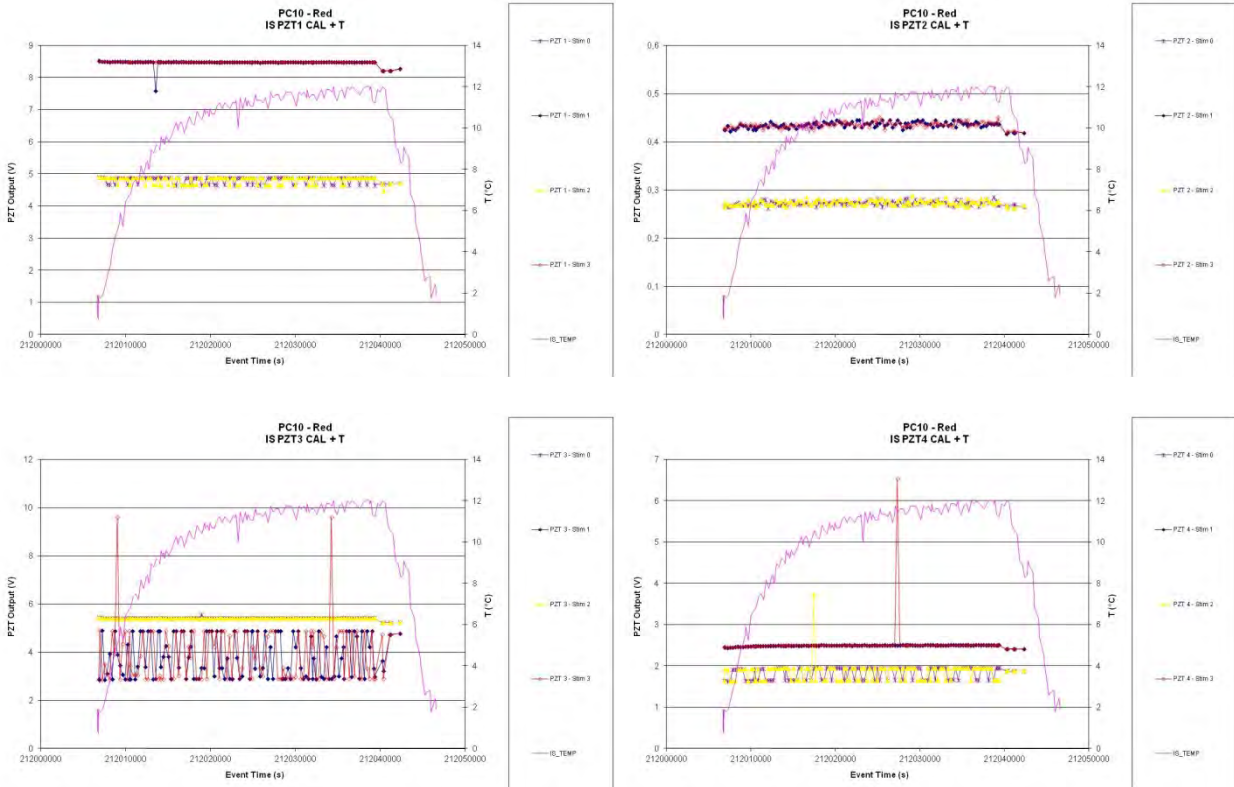
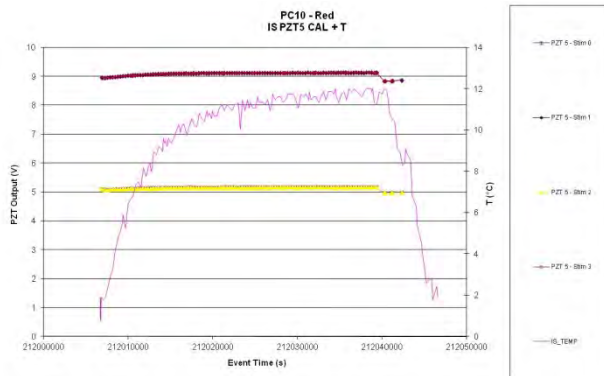


Figure 7.3-7. PZTs CAL Signal vs. time – Red





7.4 MICRO BALANCE SYSTEM (MBS)

7.4.1 MBS - Status

Figure 7.4-1. MBS Operation Status vs. time - Red

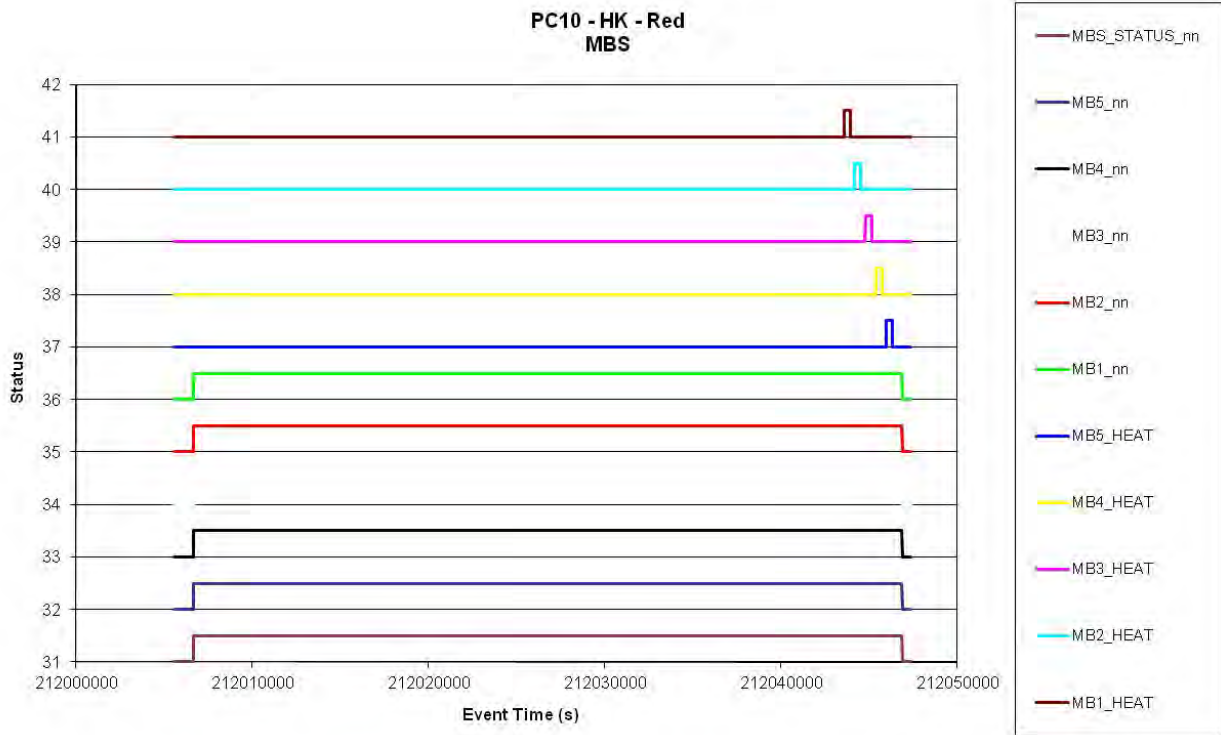
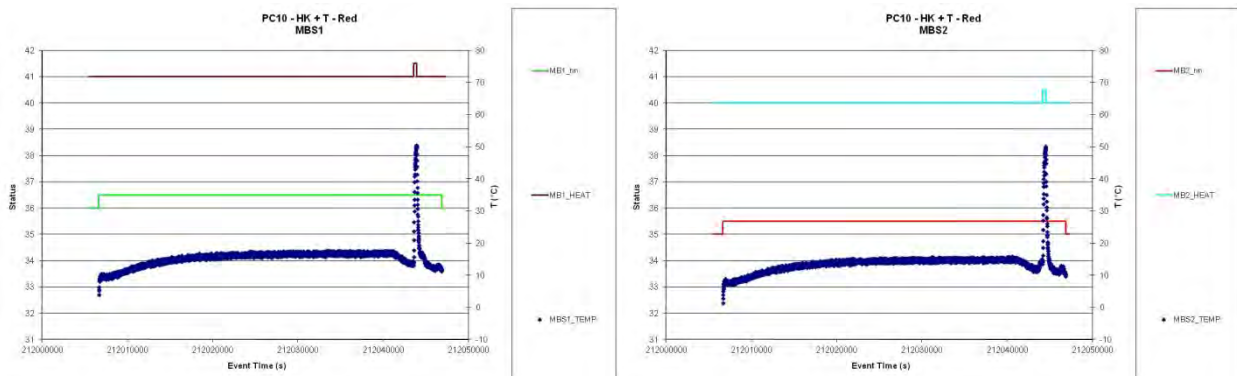


Figure 7.4-2. MBSs Temperature vs. time (SCI) - Red



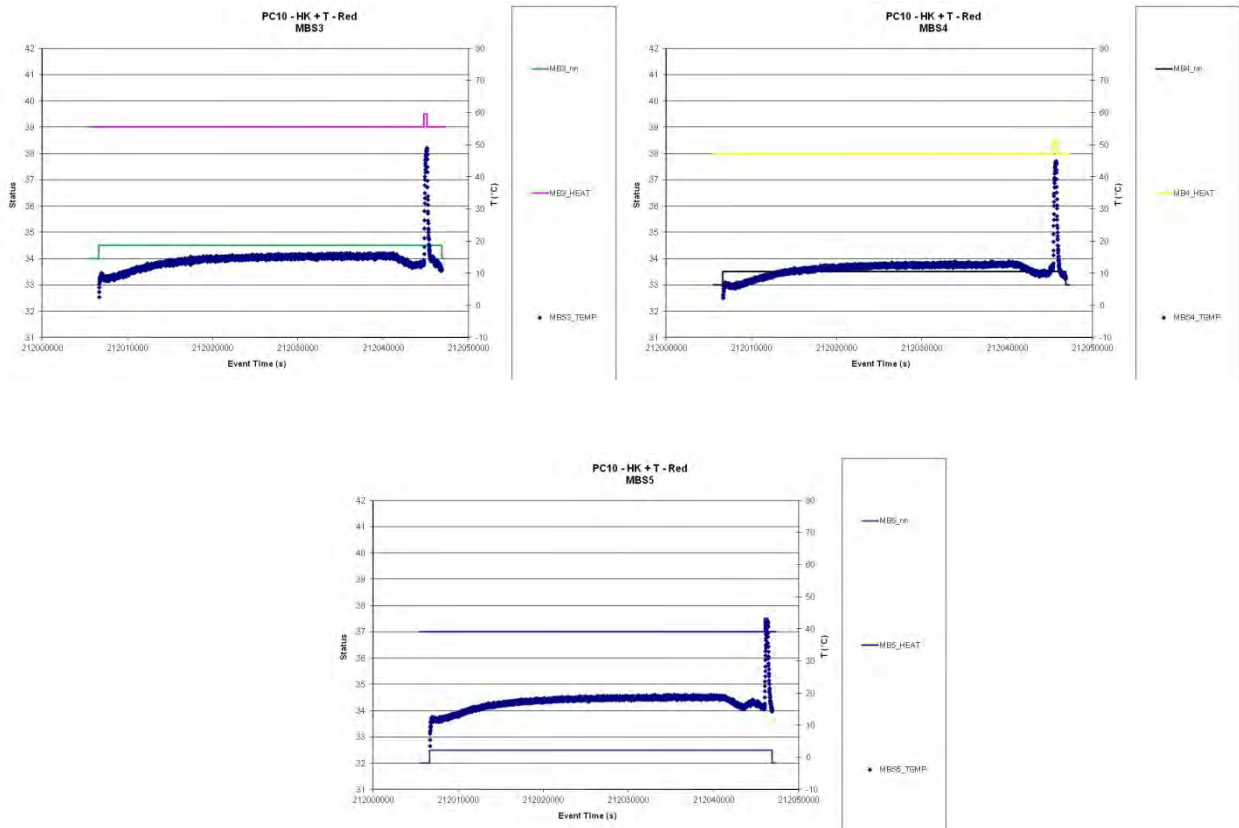
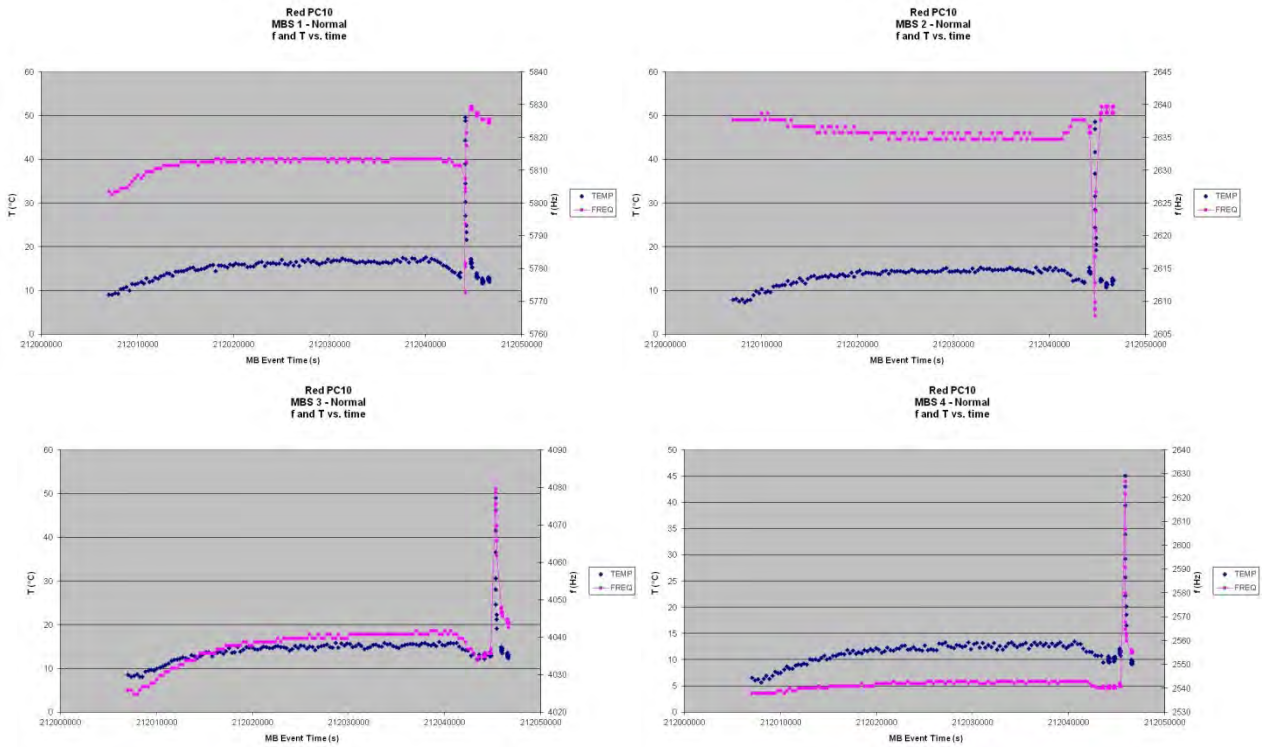
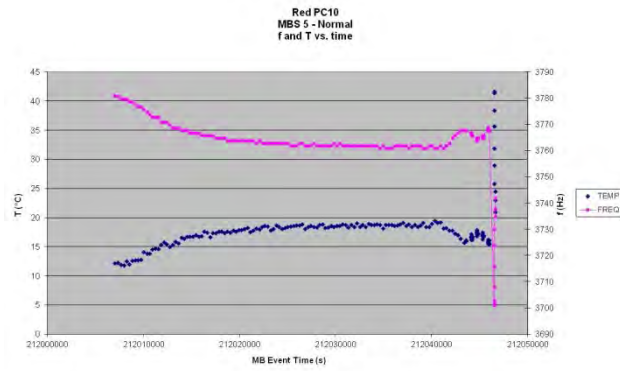


Figure 7.4-3. MBSs Frequency and Temperature vs. time– Red





8. PC10 DATA ANALYSIS – MAIN INTERFACE (GD02)

8.1 GIADA STATUS

Figure 8.1-1. HK Status of GIADA vs. time – Main

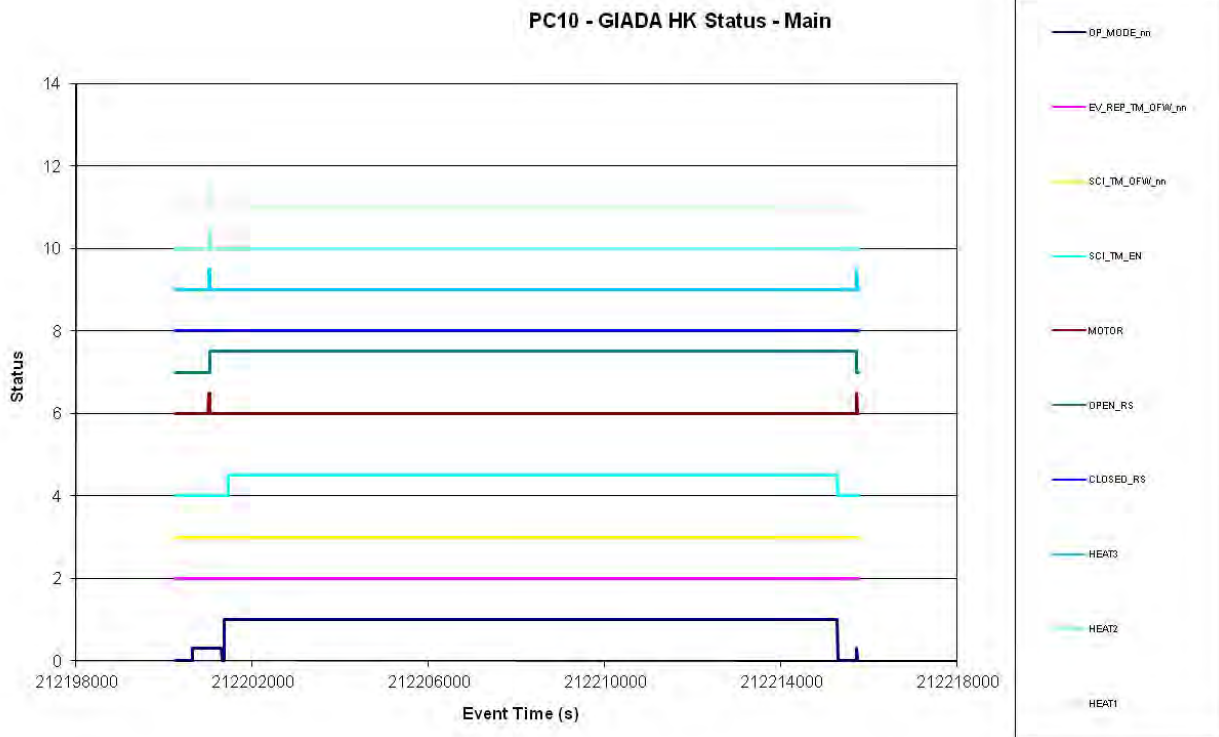


Figure 8.1-2. Power profile and Power Supply temperature vs. time - HK, Main

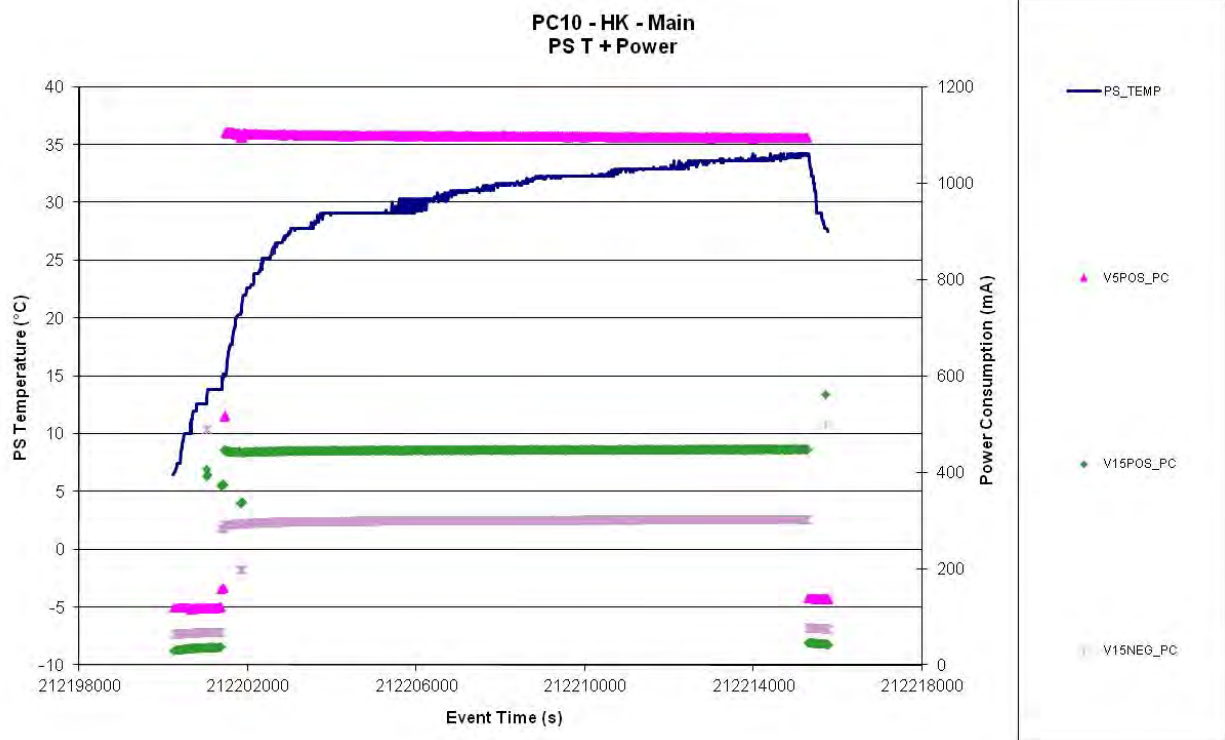


Figure 8.1-3. Evolution of temperatures of system elements vs. time - HK, Main

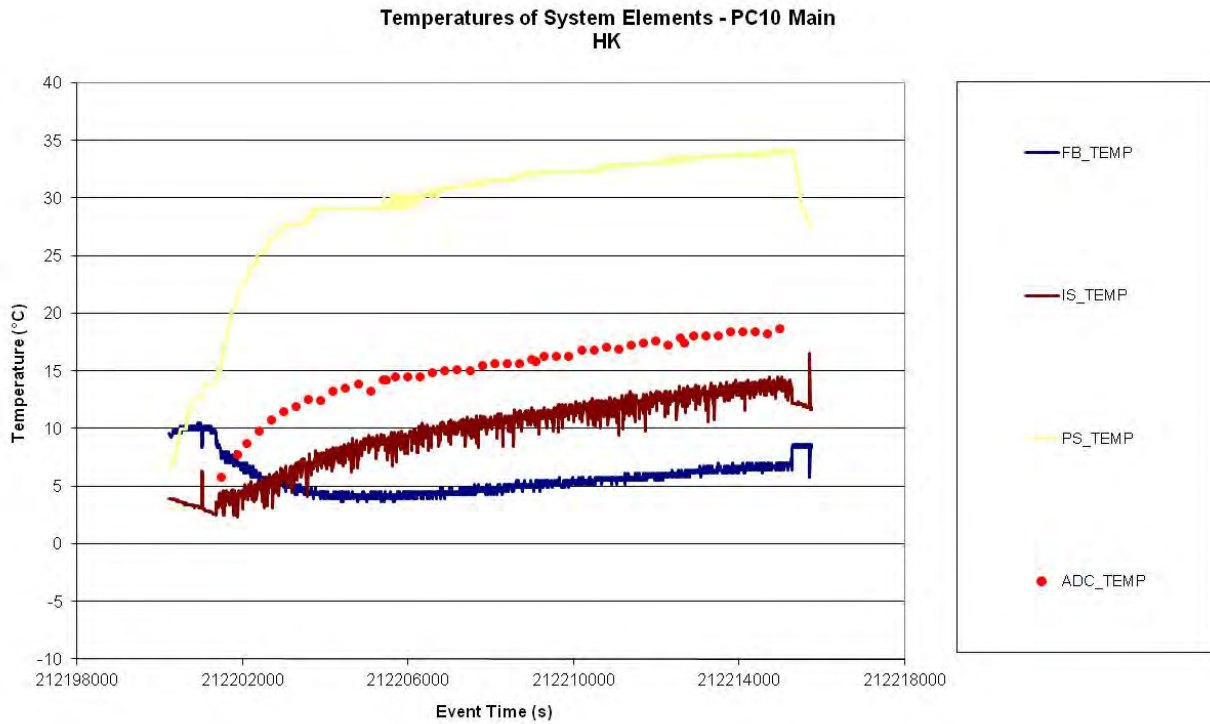


Figure 8.1-4. Evolution of temperatures of sub-systems vs. time with instrument in Normal Mode- Main

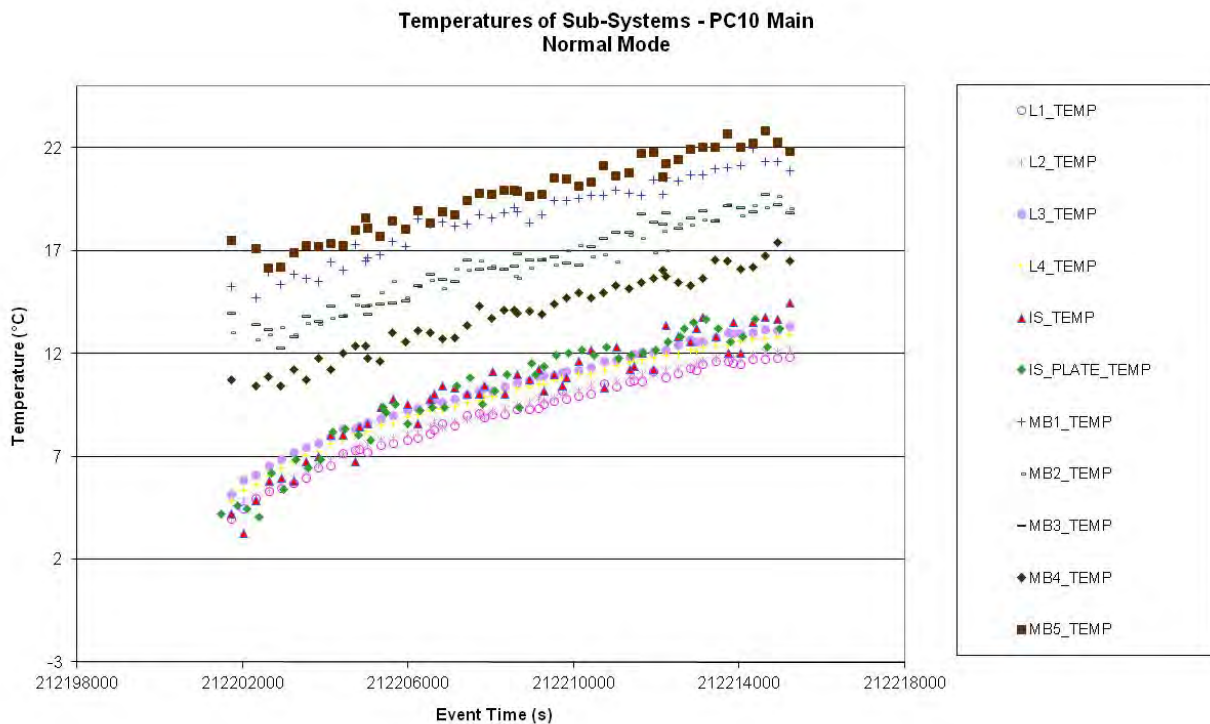


Figure 8.1-5. HK Status versus Temperatures of system elements – Main

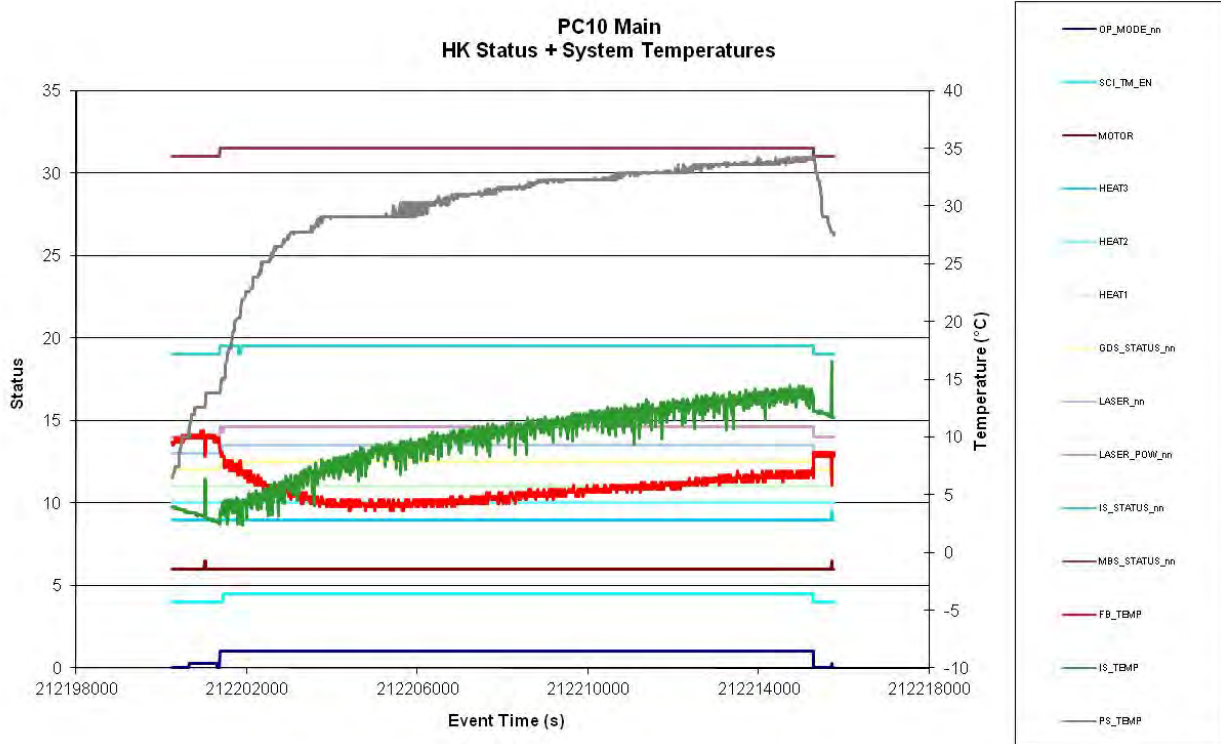
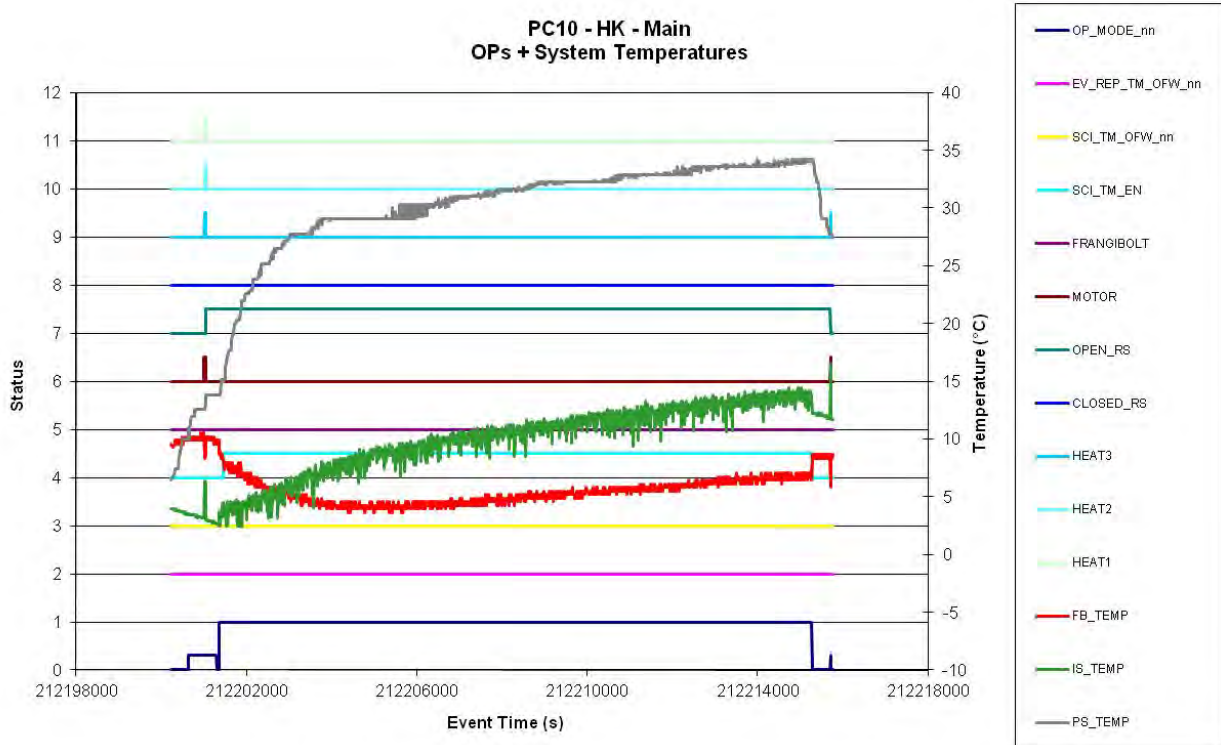


Figure 8.1-6. Operation Status versus Temperatures of system elements – Main
In the diagram are reported operative parameters with relevant variations.



8.2 GRAIN DETECTION SYSTEM (GDS)

8.2.1 GDS – Status

Figure 8.2-1. GDS Operation Status vs. time – Main

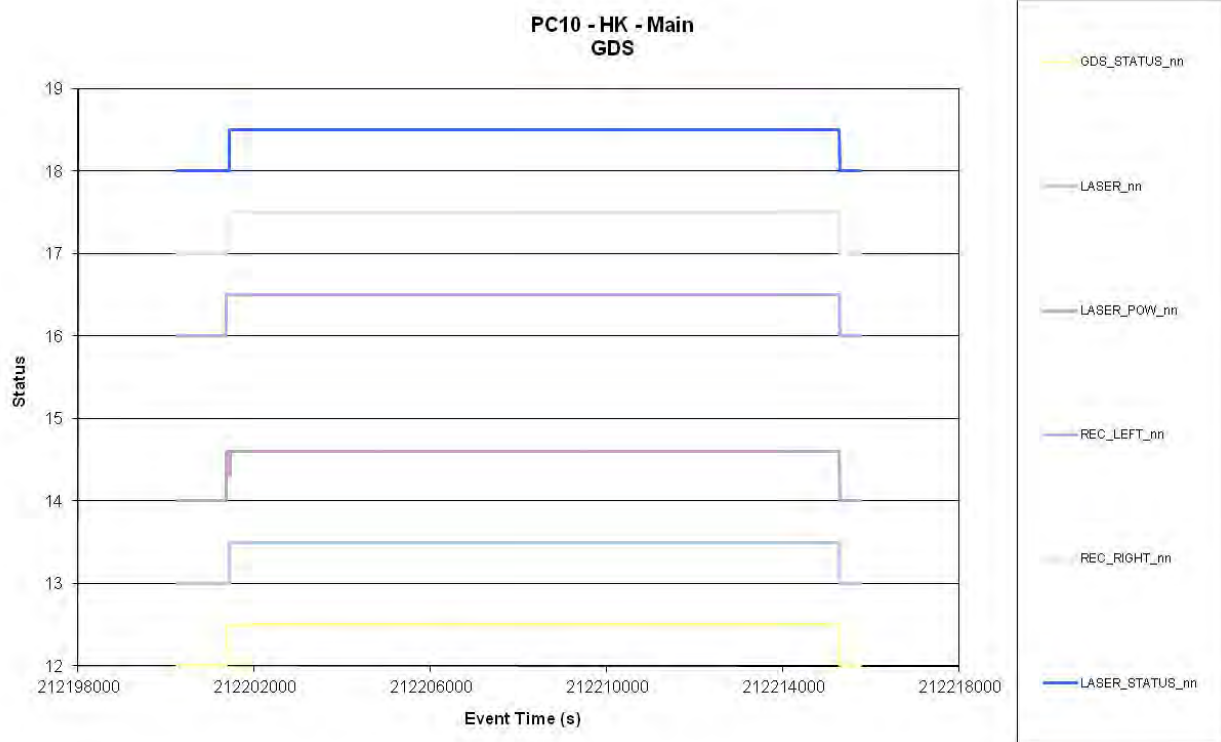


Figure 8.2-2. GDS Thresholds change vs. time – Main

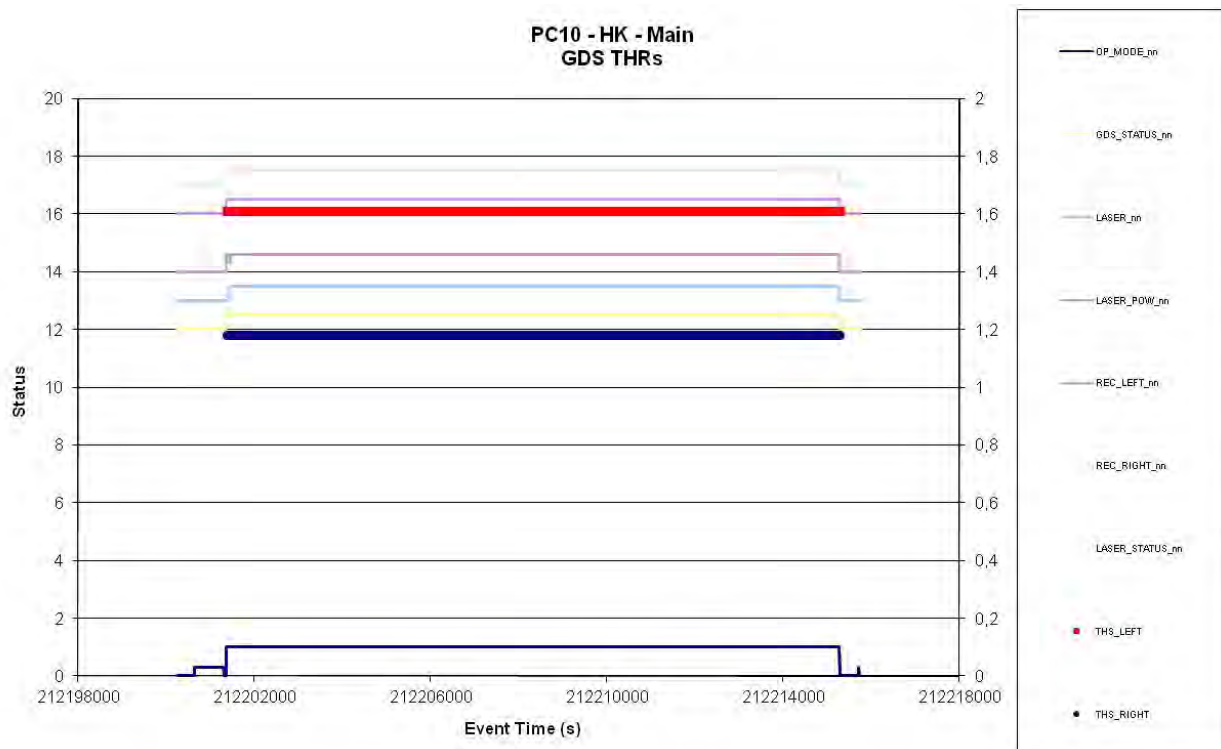


Figure 8.2-3. GDS Laser Temperatures vs. time- Main

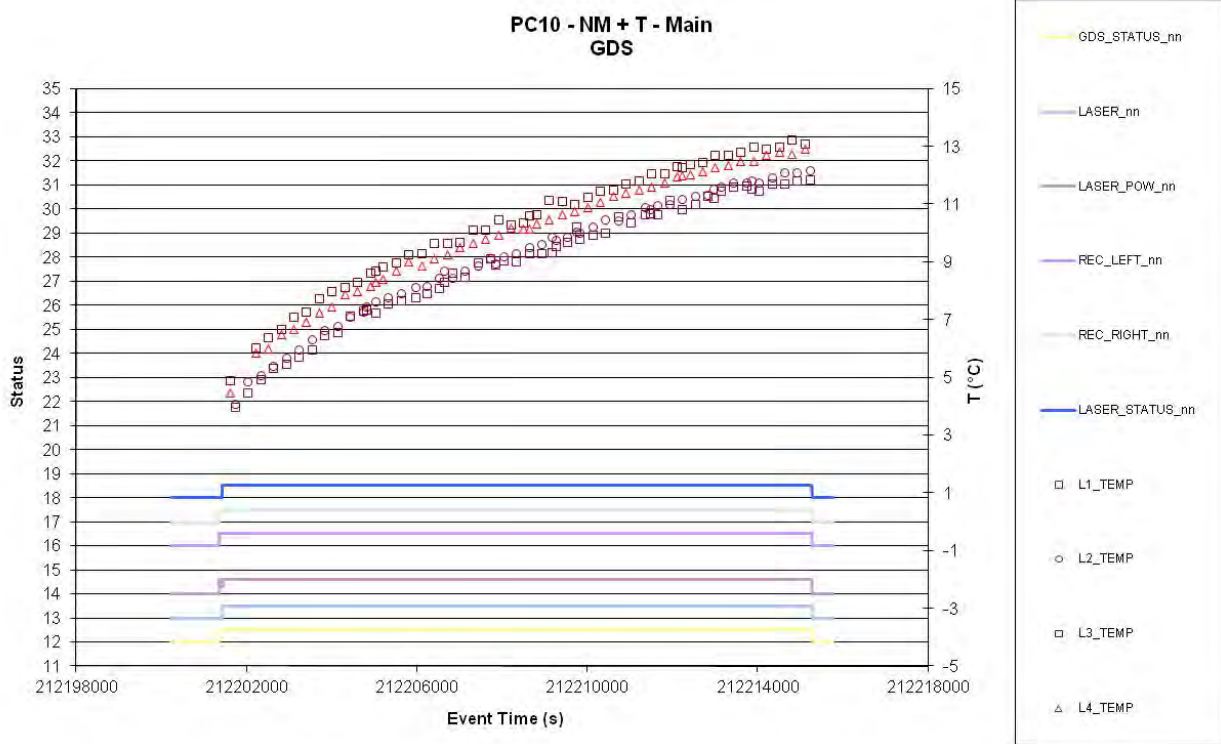


Figure 8.2-4. GDS Laser Monitor vs. time- Main

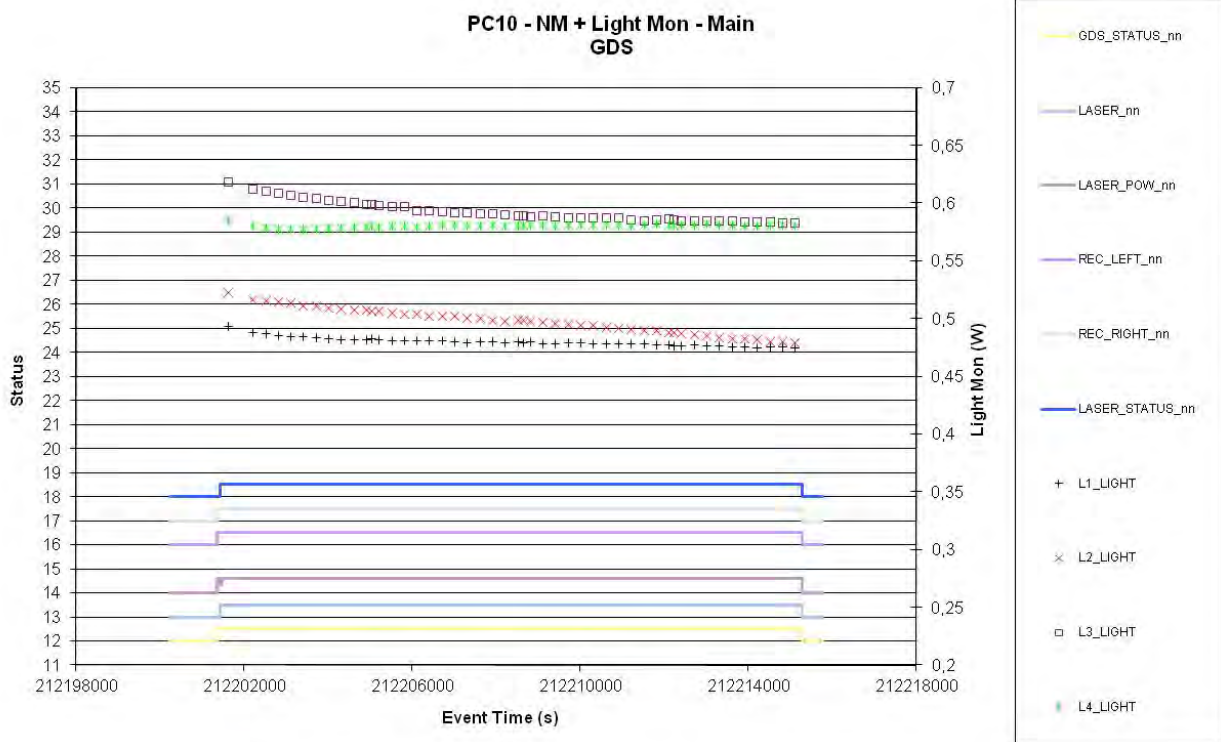


Figure 8.2-5. Lasers Light Monitor versus Temperature (HK, HK-SCI, SCI) – Main

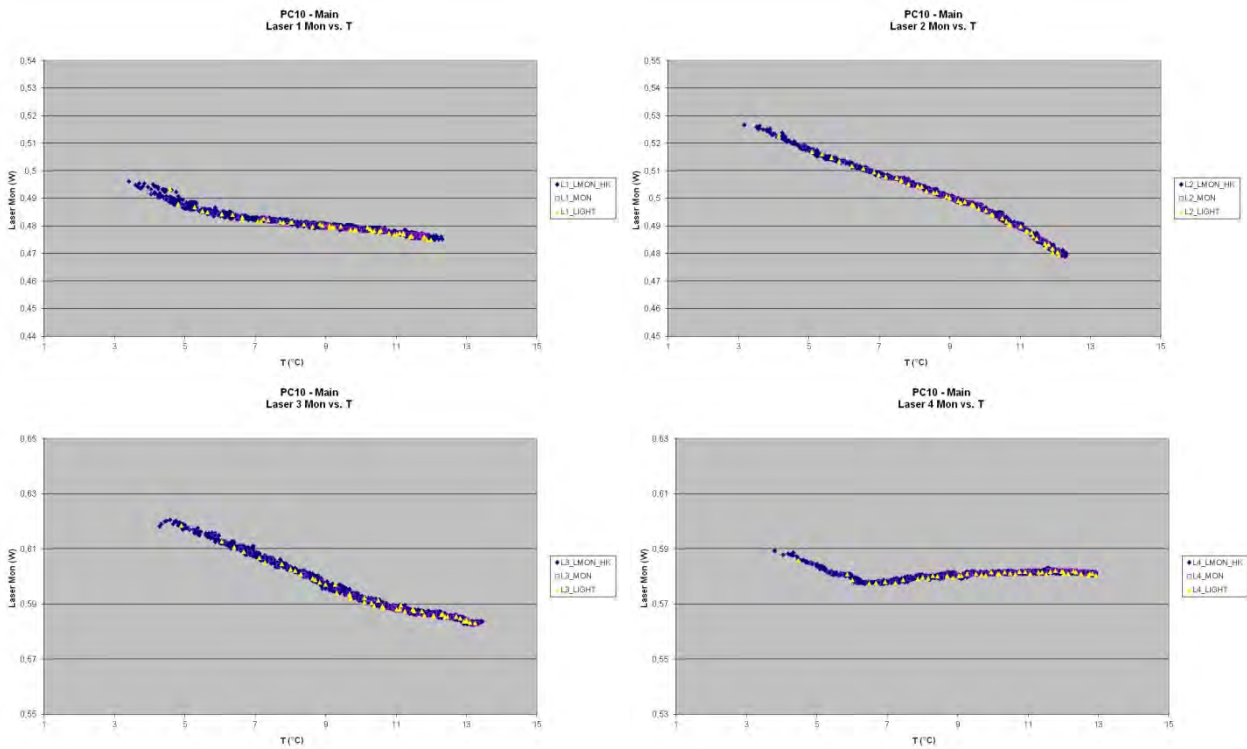
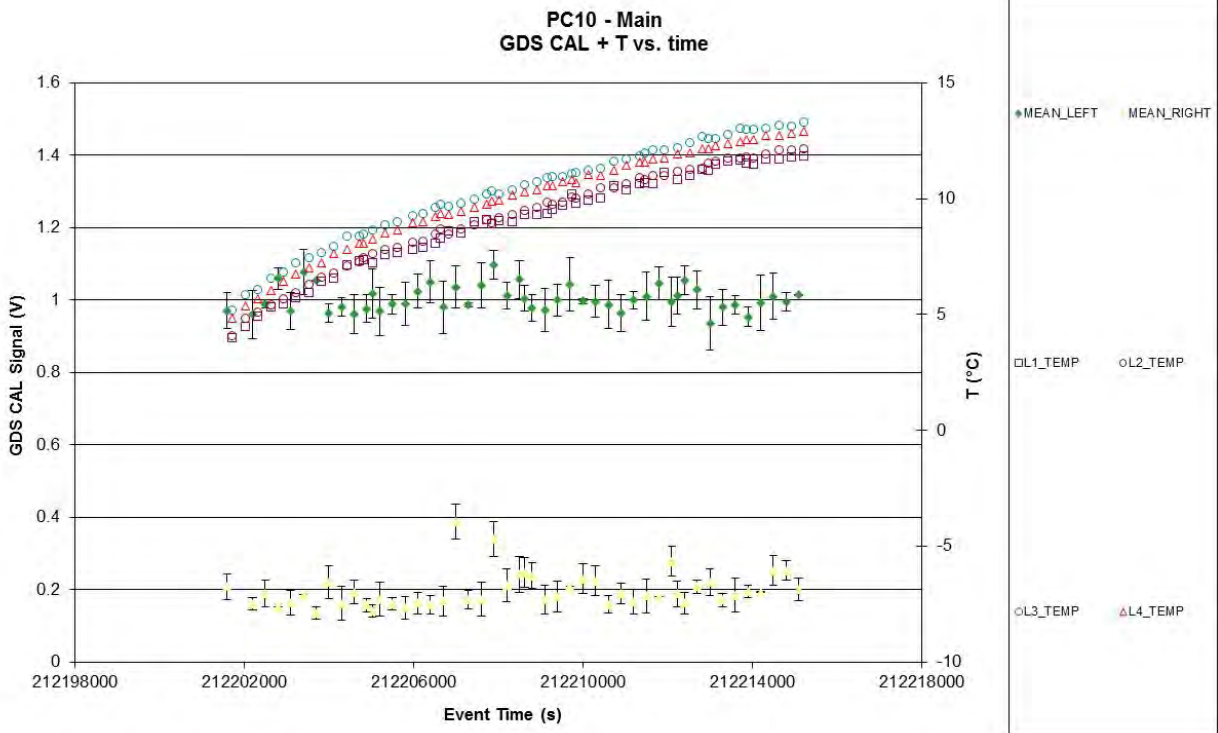


Figure 8.2-6. GDS Calibration Values vs. time– Main



8.3 IMPACT SENSOR (IS)

8.3.1 IS - Status

Figure 8.3-1. IS Operation Status vs. time - Main

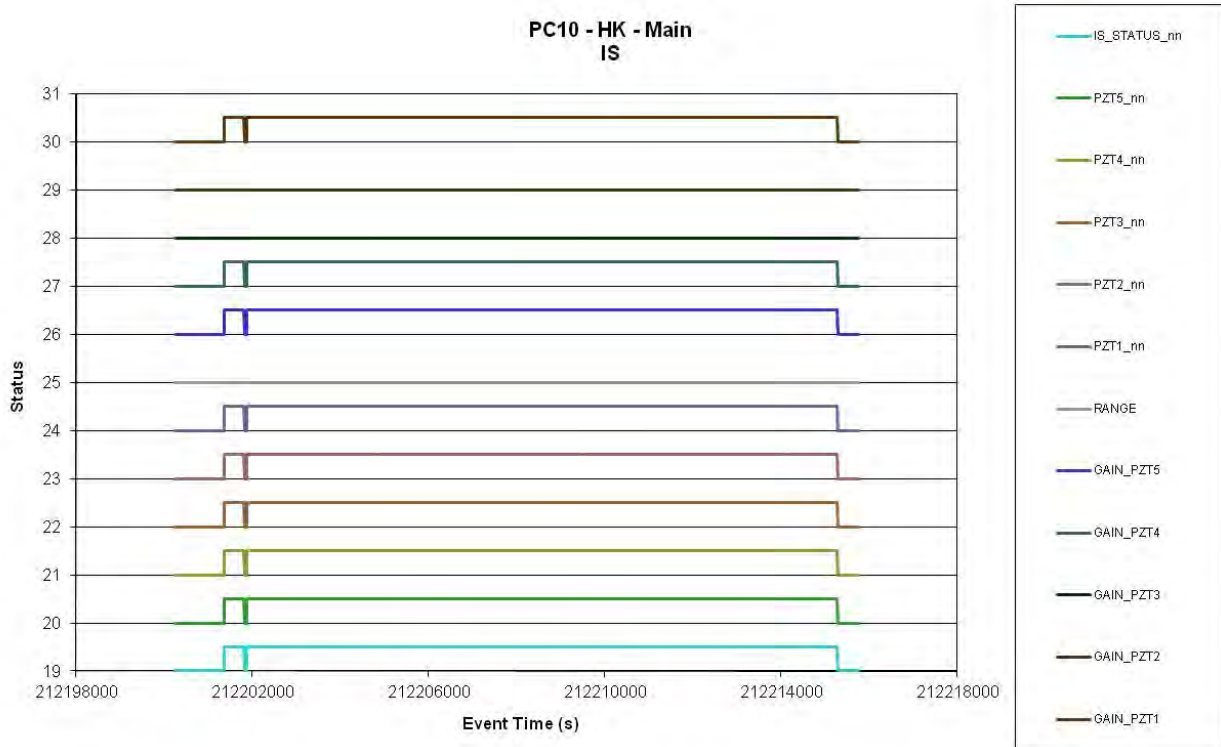


Figure 8.3-2. IS PZT 3 Thresholds change vs. time - Main

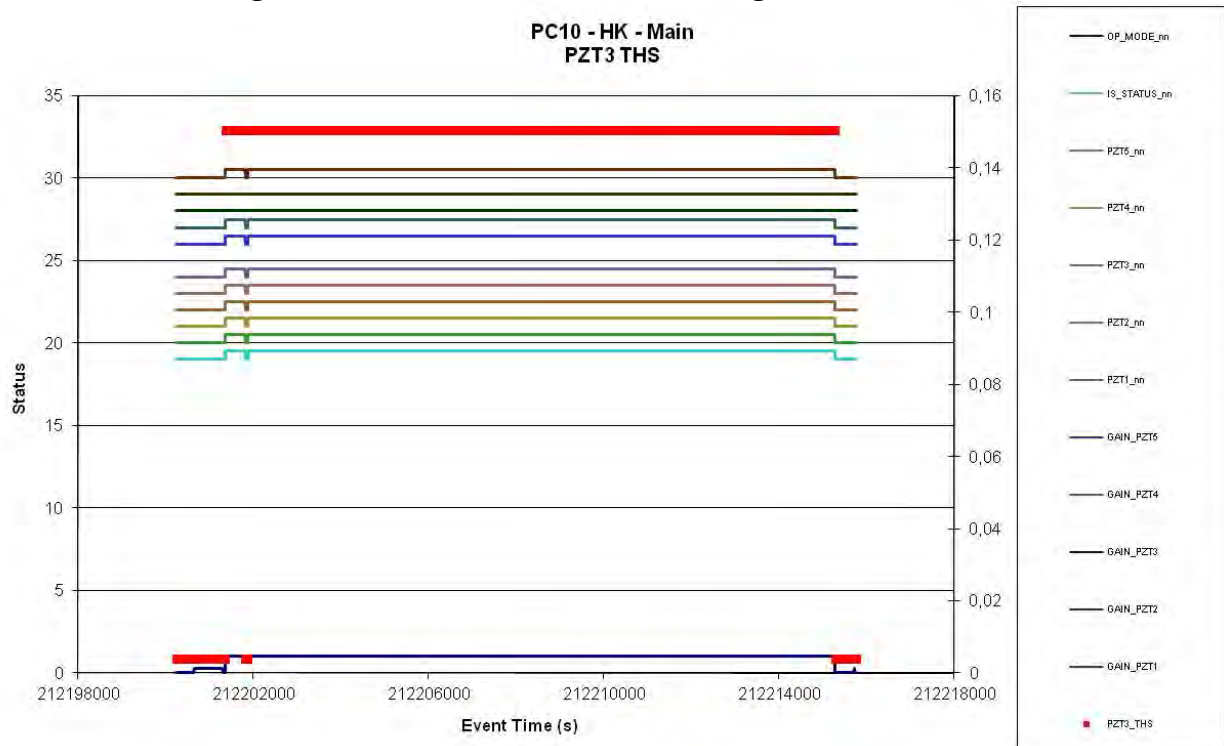


Figure 8.3-3. IS PZT 5 Thresholds change vs. time – Main

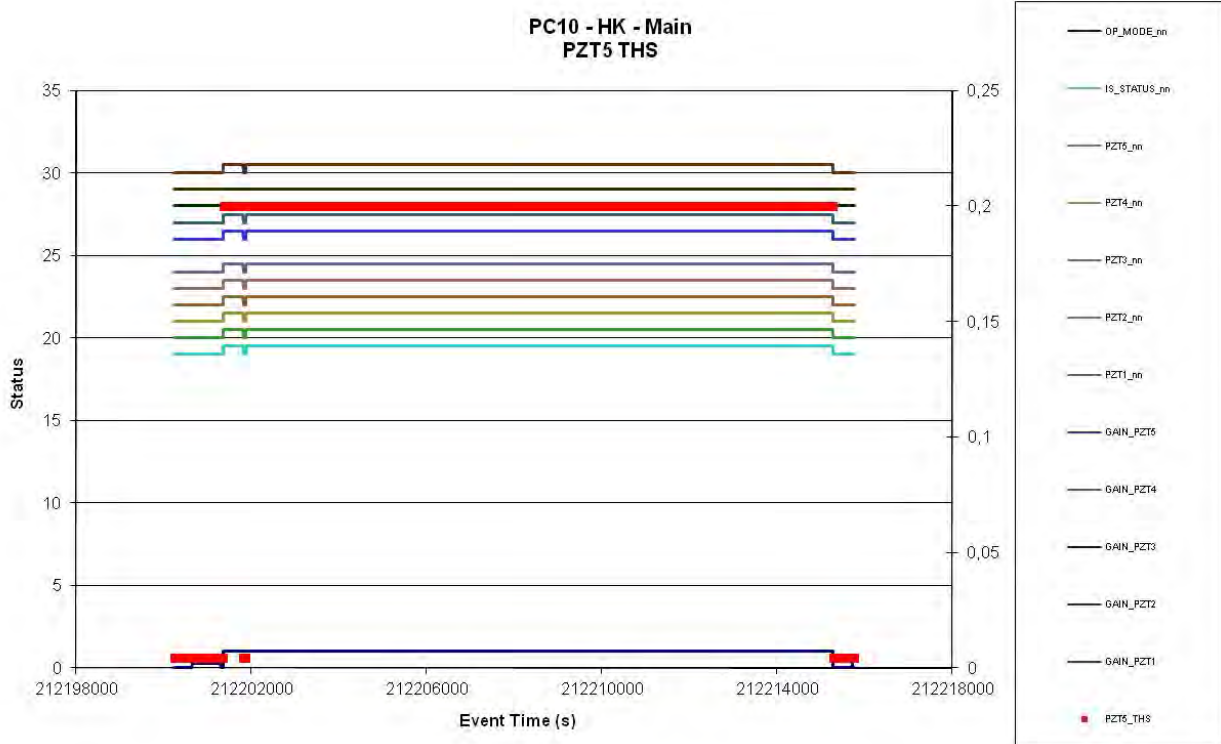
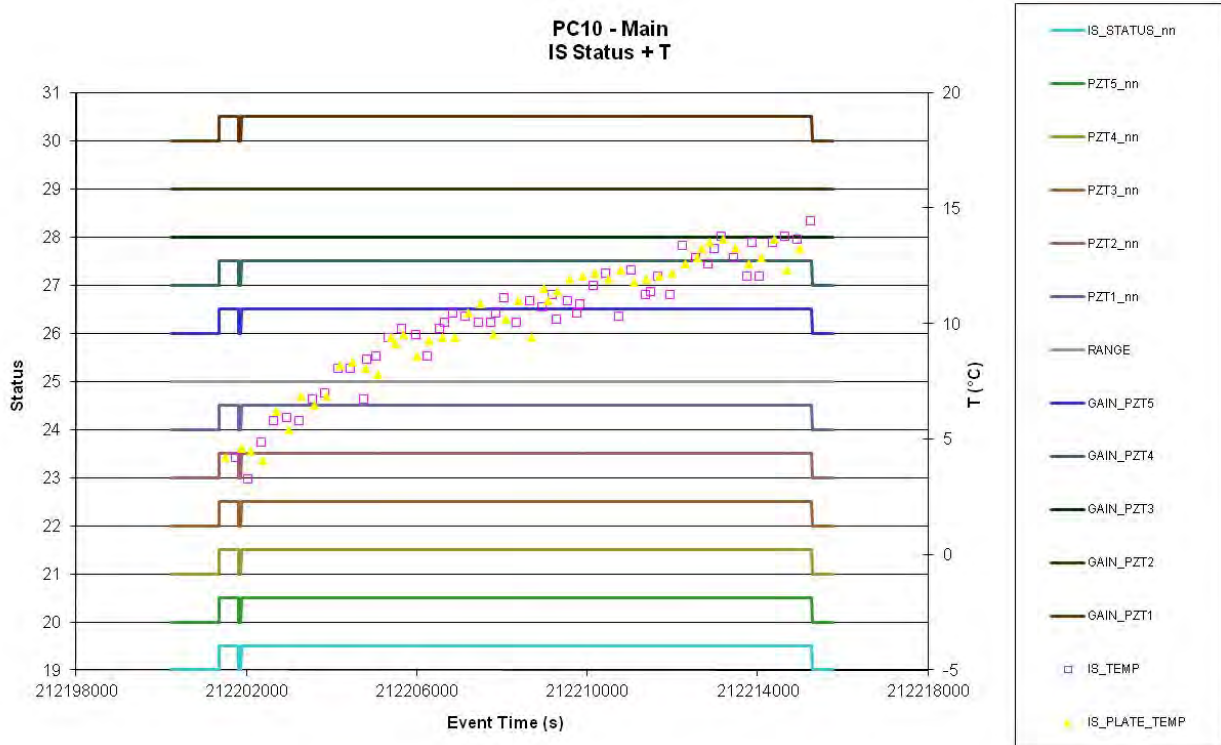


Figure 8.3-4. IS Temperature vs. time (HK, HK-SCI, SCI) – Main



8.3.1.1 CAL

Figure 8.3-5. PZTs Mean and St Dev. CAL vs. time – Main

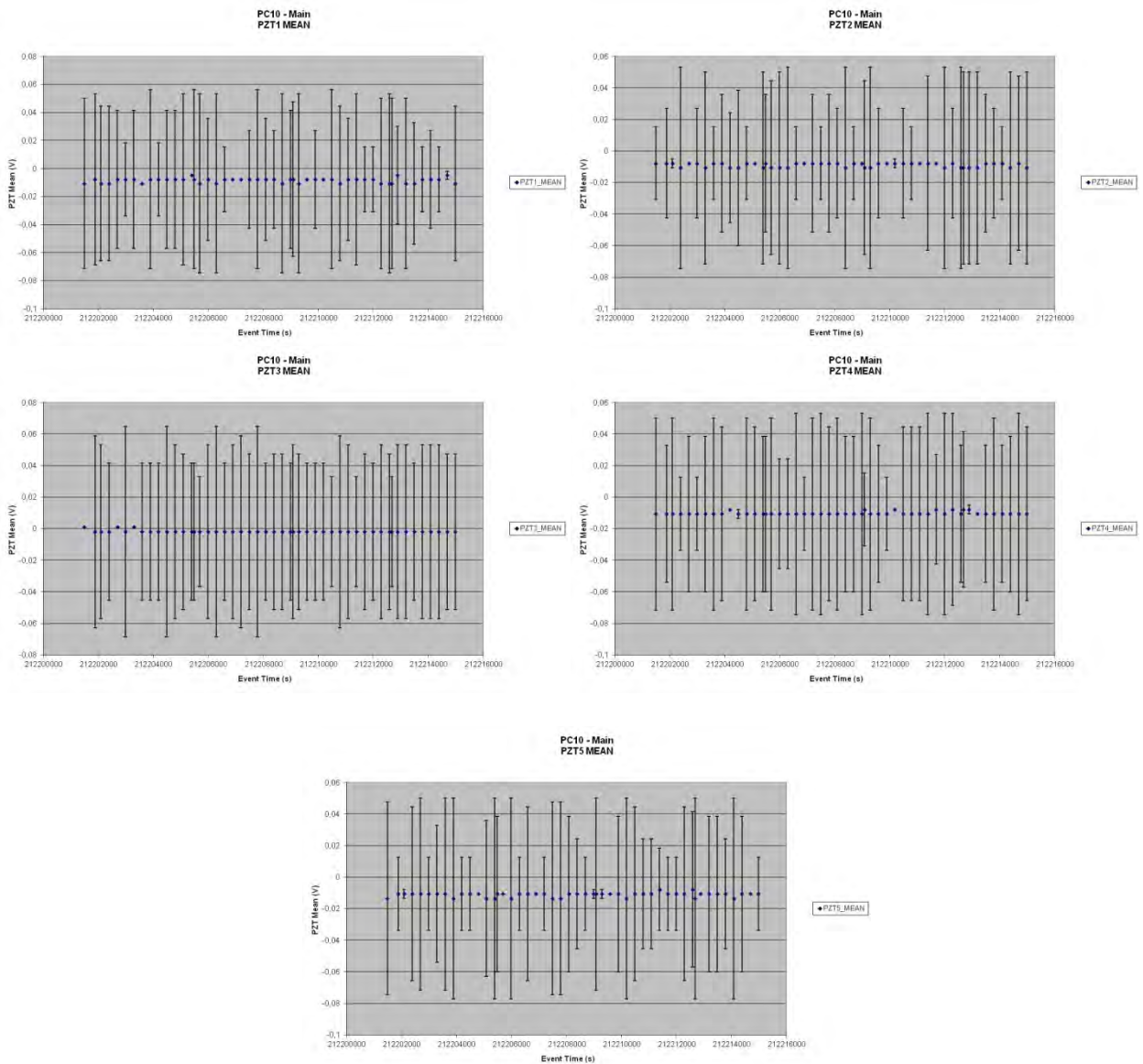


Figure 8.3-6. Reference Voltages for IS calibration vs. time – Main
Voltages values for the calibrator don't show level variation

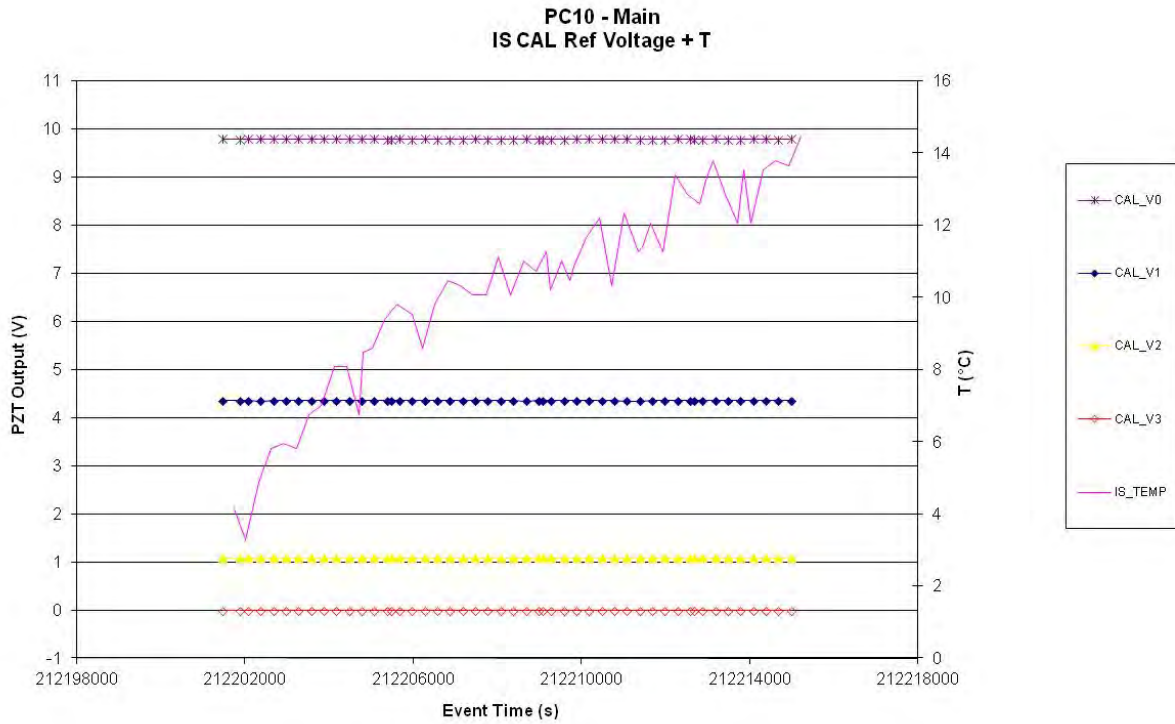
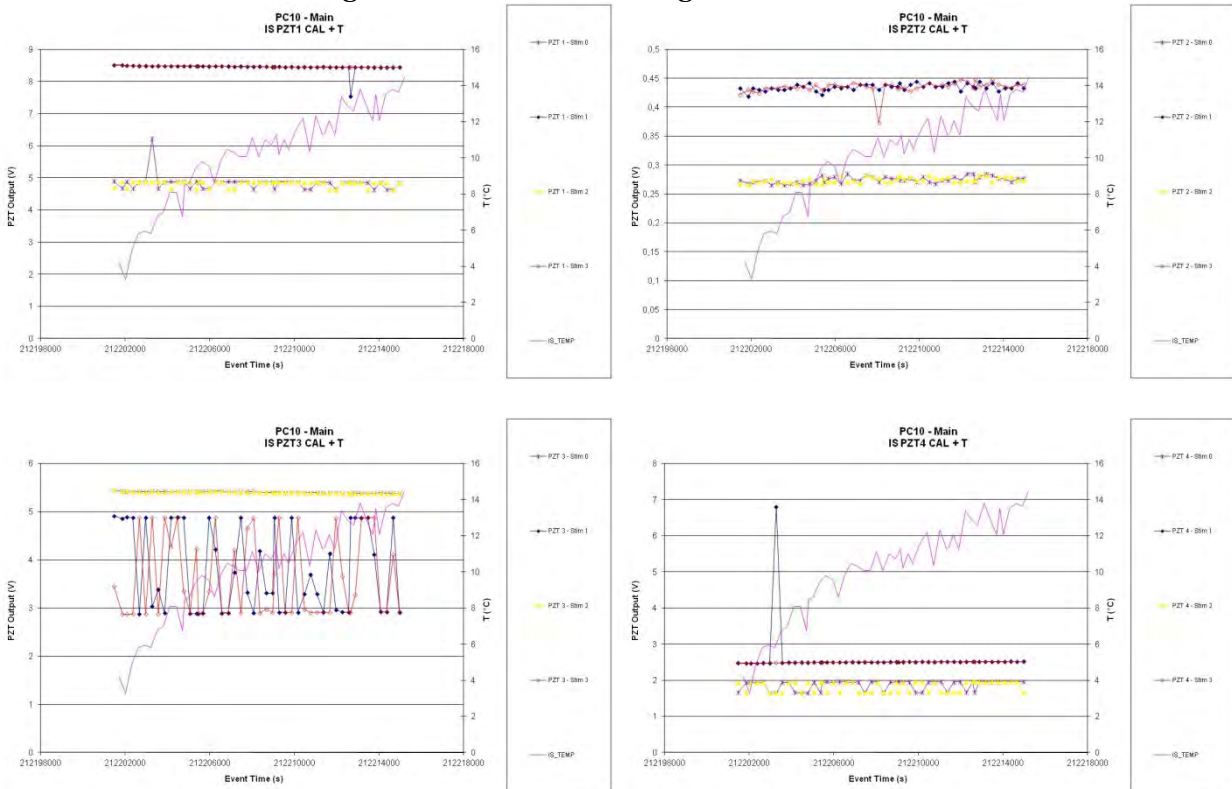
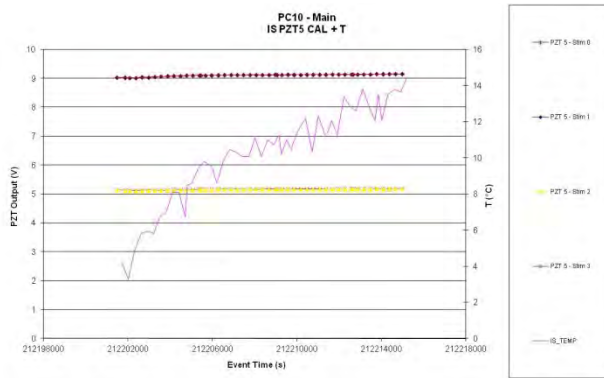


Figure 8.3-7. PZTs CAL Signal vs. time – Main





8.4 MICRO BALANCE SYSTEM (MBS)

8.4.1 MBS - Status

Figure 8.4-1. MBS Operation Status vs. time - Main

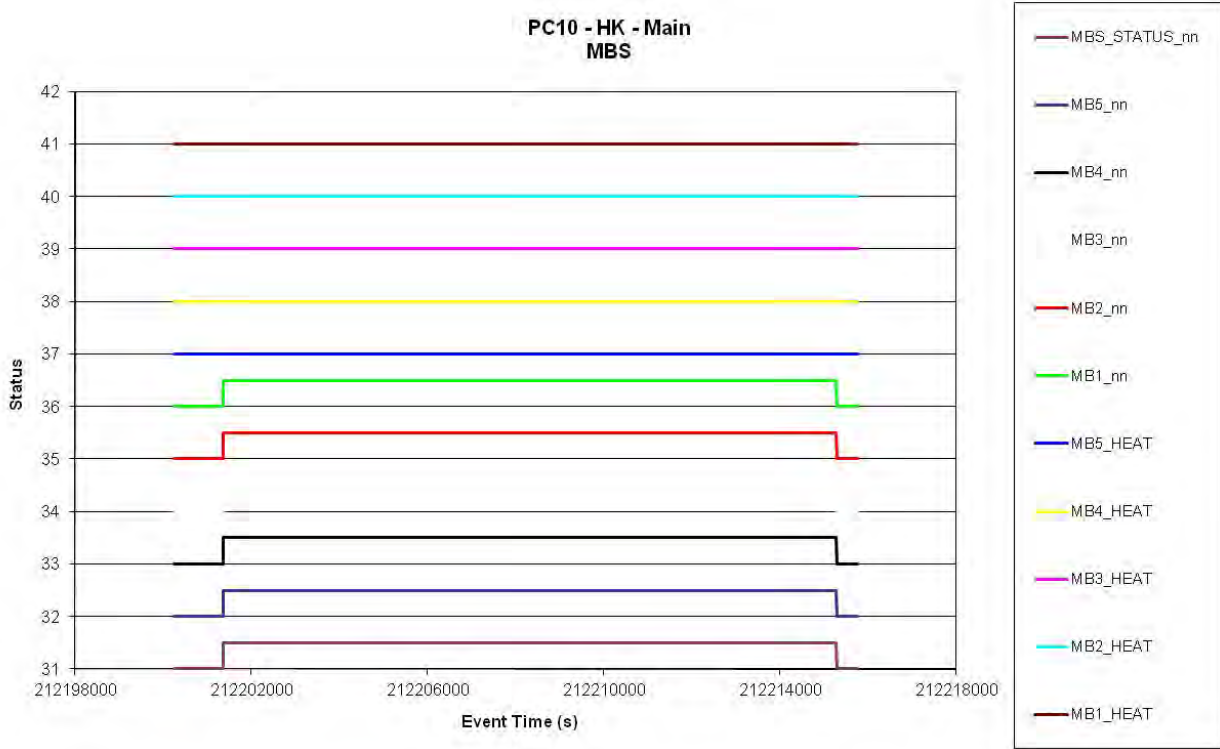
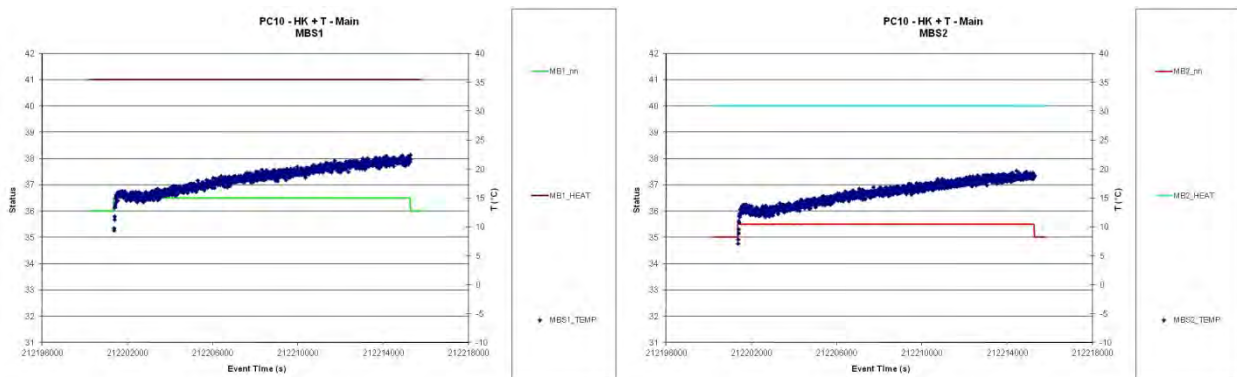


Figure 8.4-2. MBSs Temperature vs. time (SCI) - Main



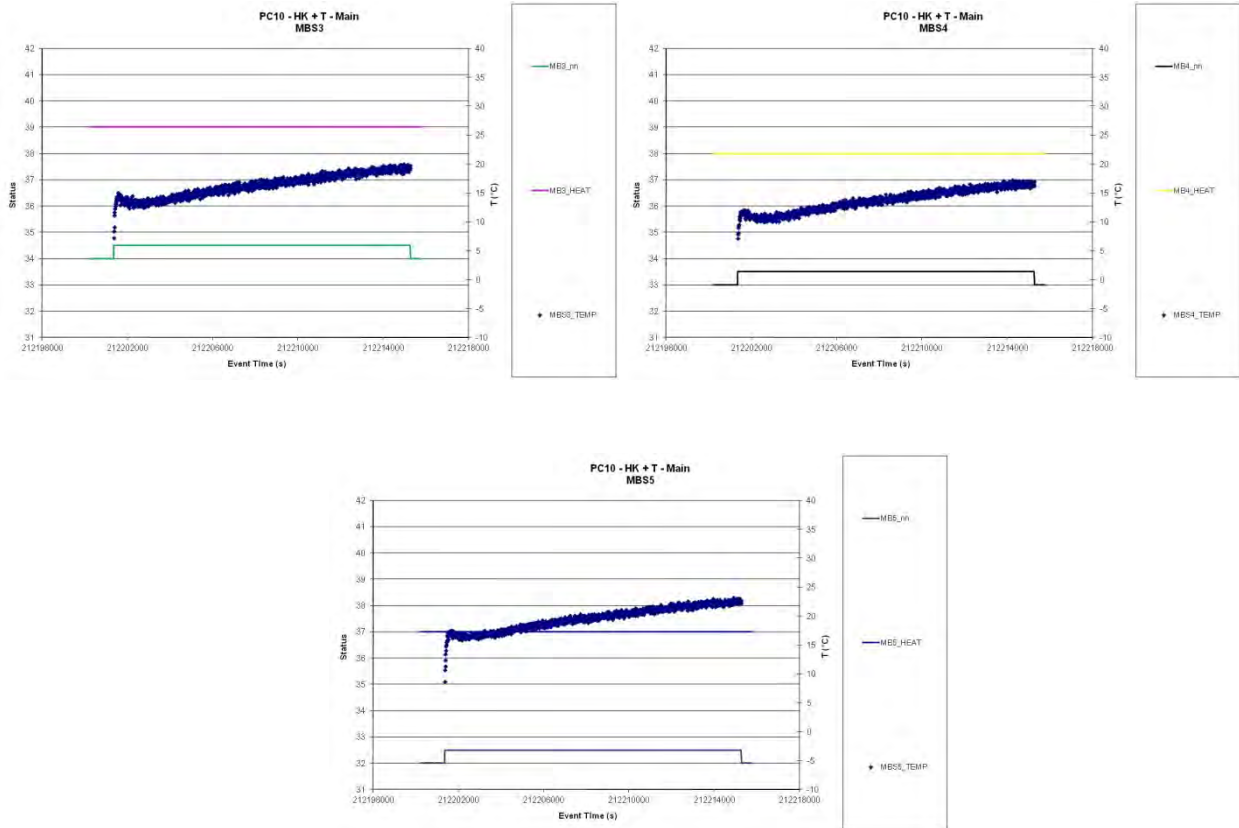
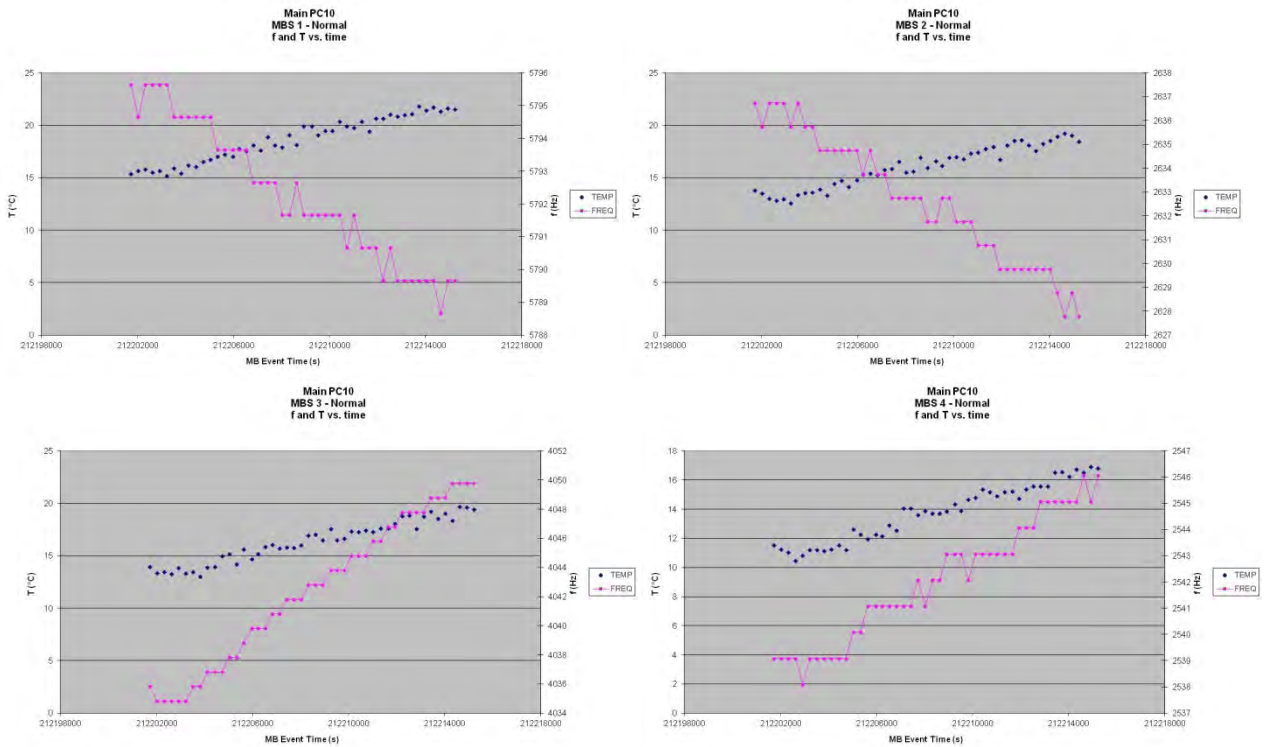
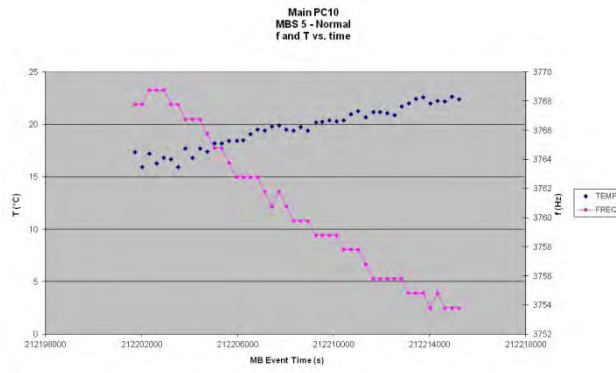


Figure 8.4-3. MBSs Frequency and Temperature vs. time– Main





9. PC10 DATA ANALYSIS – MAIN INTERFACE (GD03)

9.1 GIADA STATUS

Figure 9.1-1. HK Status of GIADA vs. time – Main

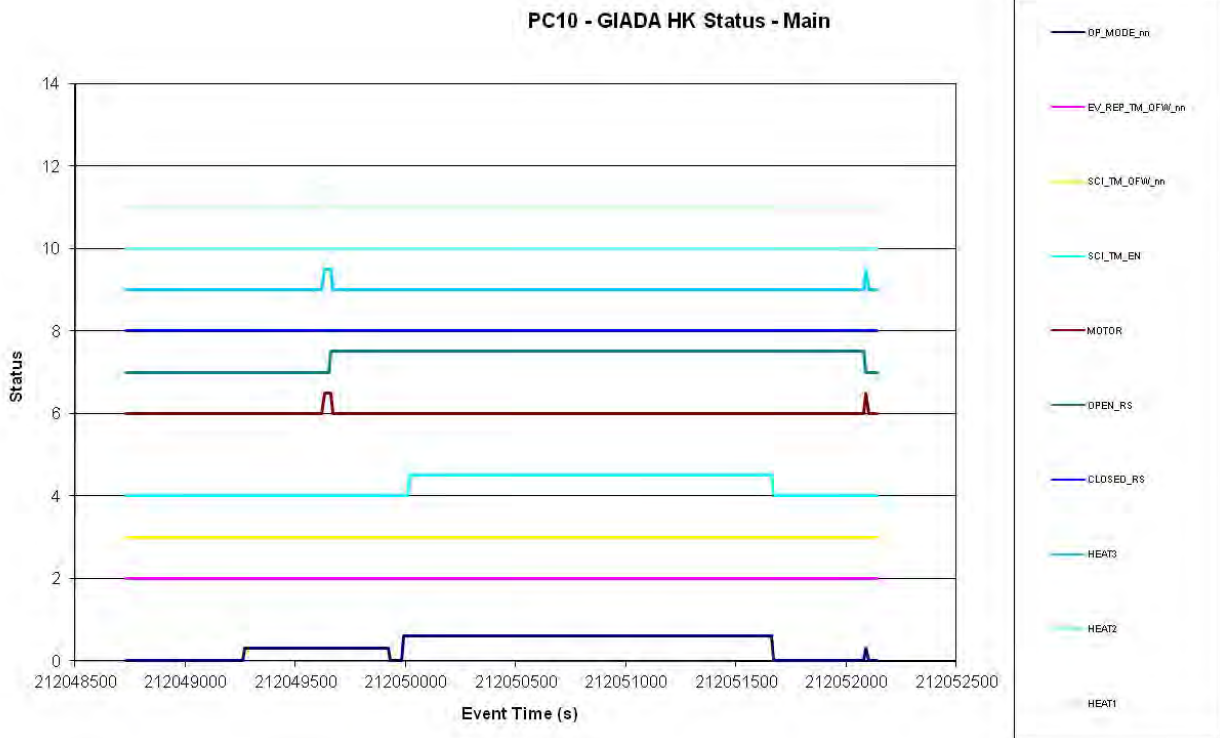


Figure 9.1-2. Power profile and Power Supply temperature vs. time - HK, Main

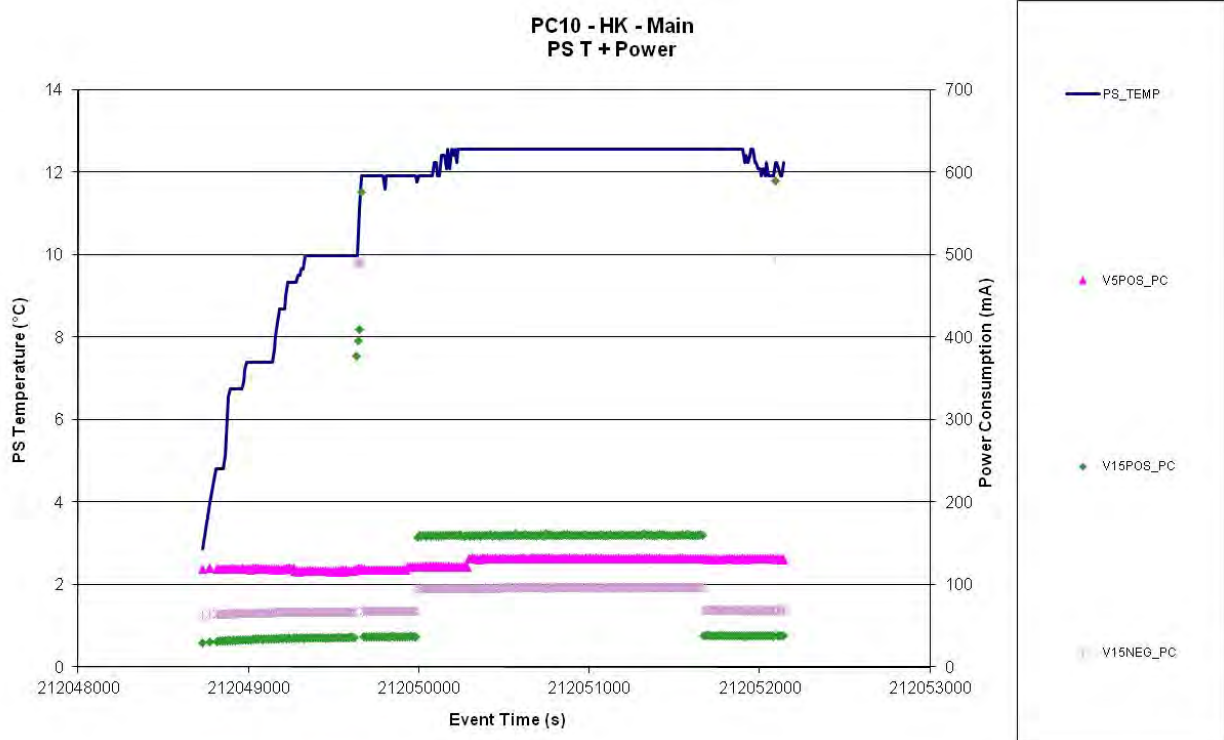


Figure 9.1-3. Evolution of temperatures of system elements vs. time - HK, Main

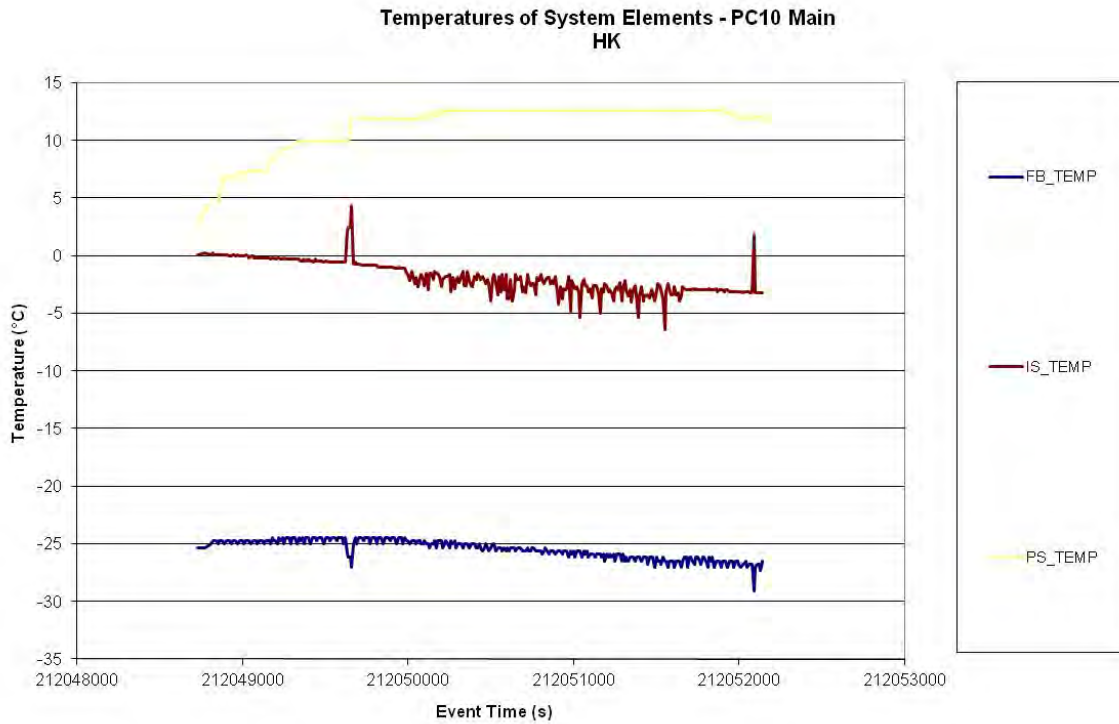


Figure 9.1-4. Evolution of temperatures of sub-systems vs. time with instrument in Normal Mode- Main

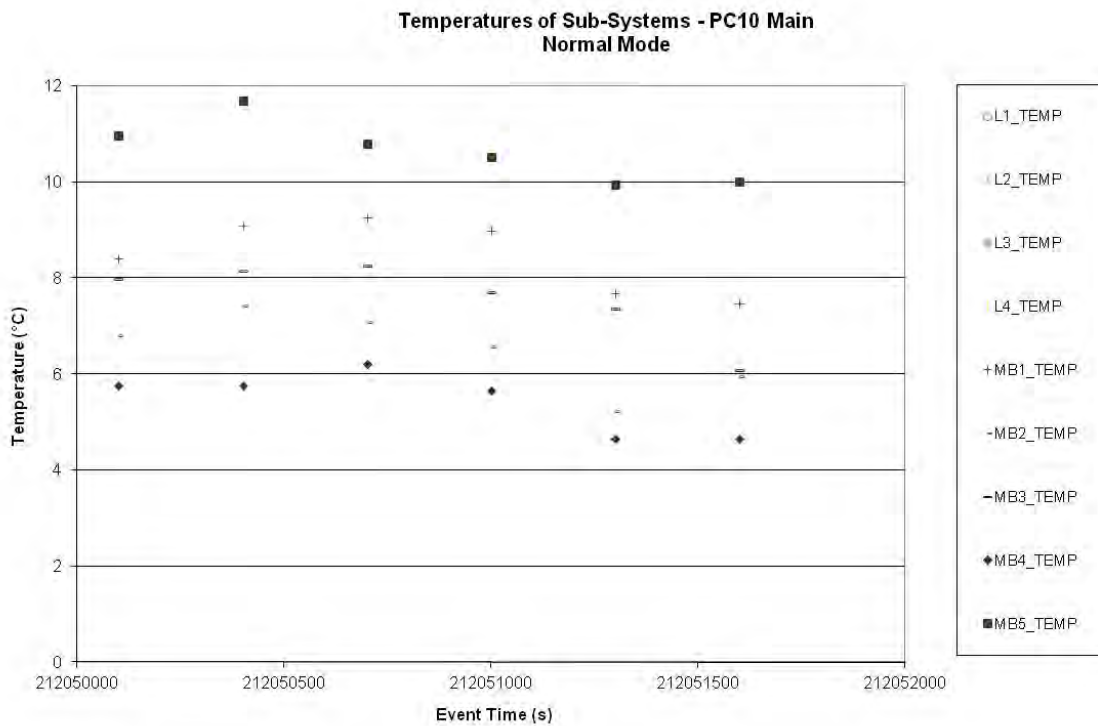


Figure 9.1-5. HK Status versus Temperatures of system elements – Main

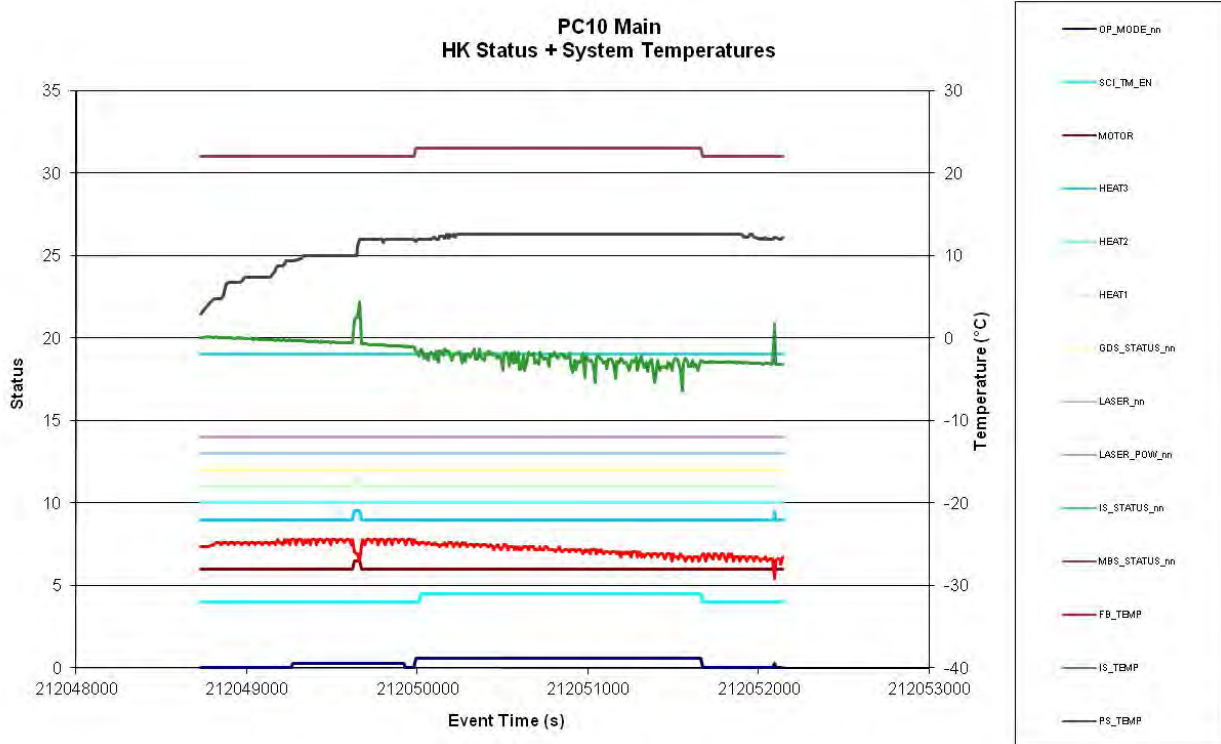
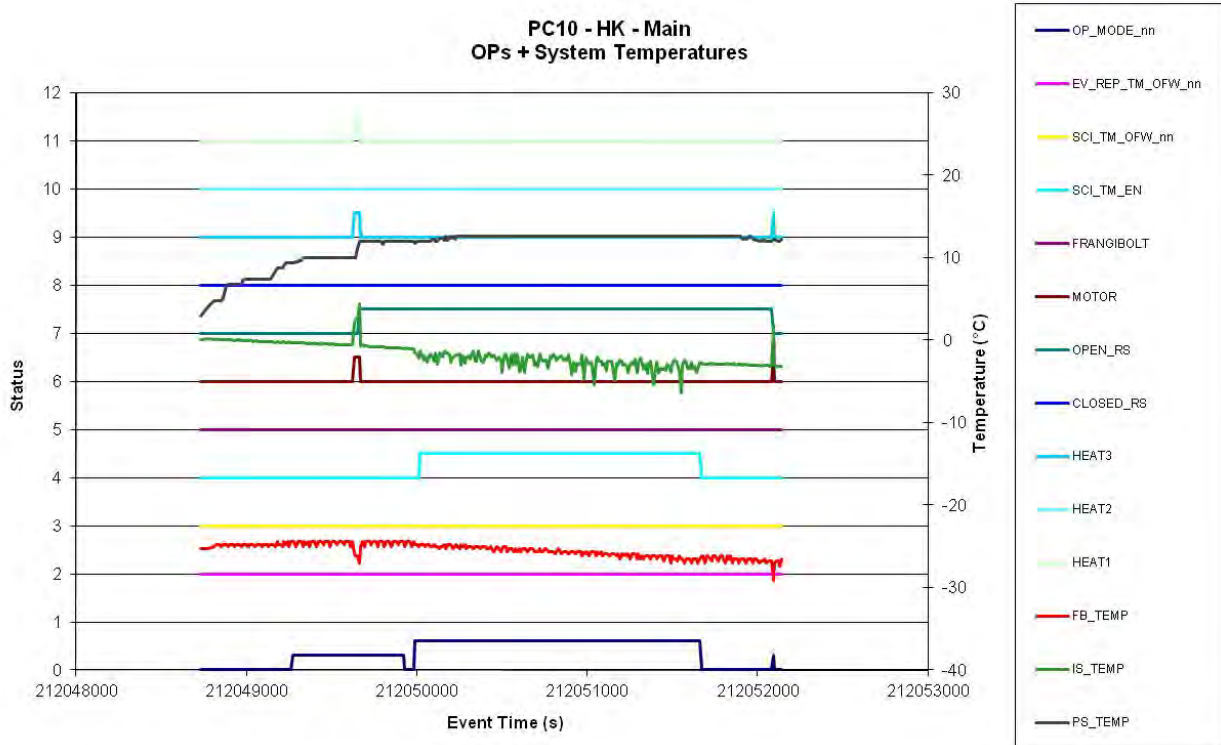


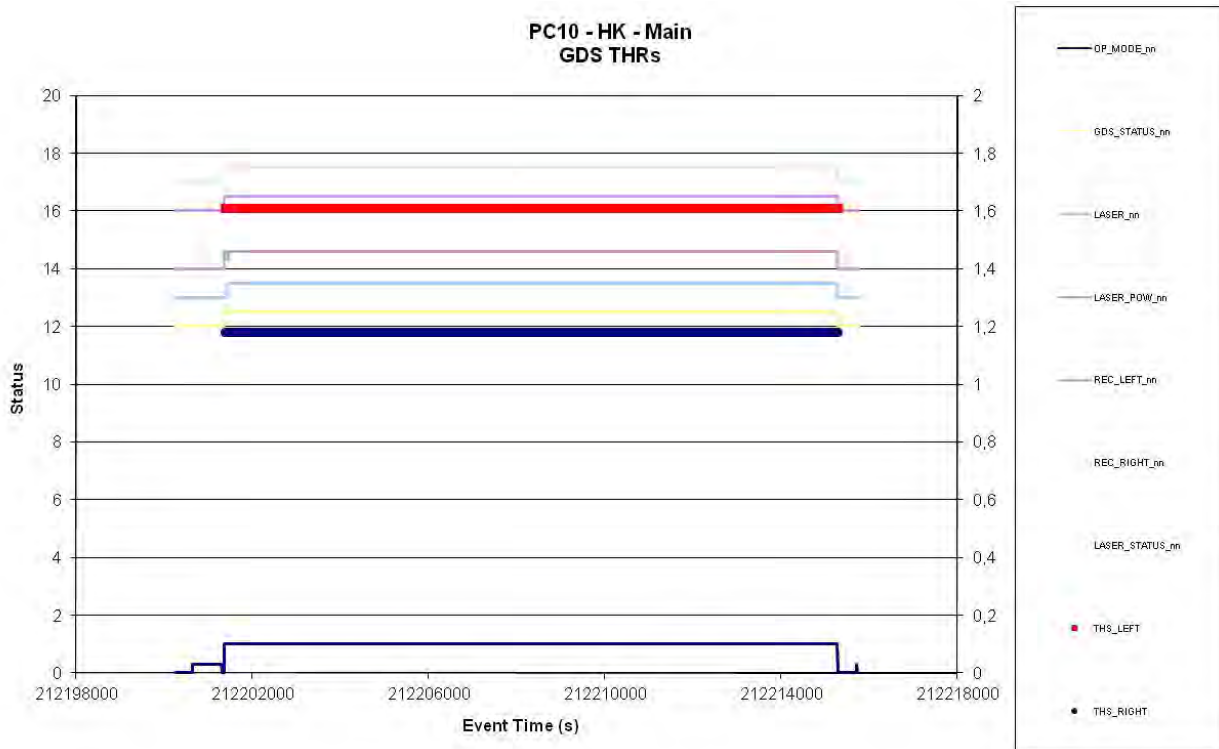
Figure 9.1-6. Operation Status versus Temperatures of system elements – Main
In the diagram are reported operative parameters with relevant variations.



9.2 GRAIN DETECTION SYSTEM (GDS)

9.2.1 GDS – Status

Figure 9.2-1. GDS Thresholds change vs. time – Main



9.3 IMPACT SENSOR (IS)

9.3.1 IS – Status

Figure 9.3-1. IS PZT 3 Thresholds change vs. time – Main

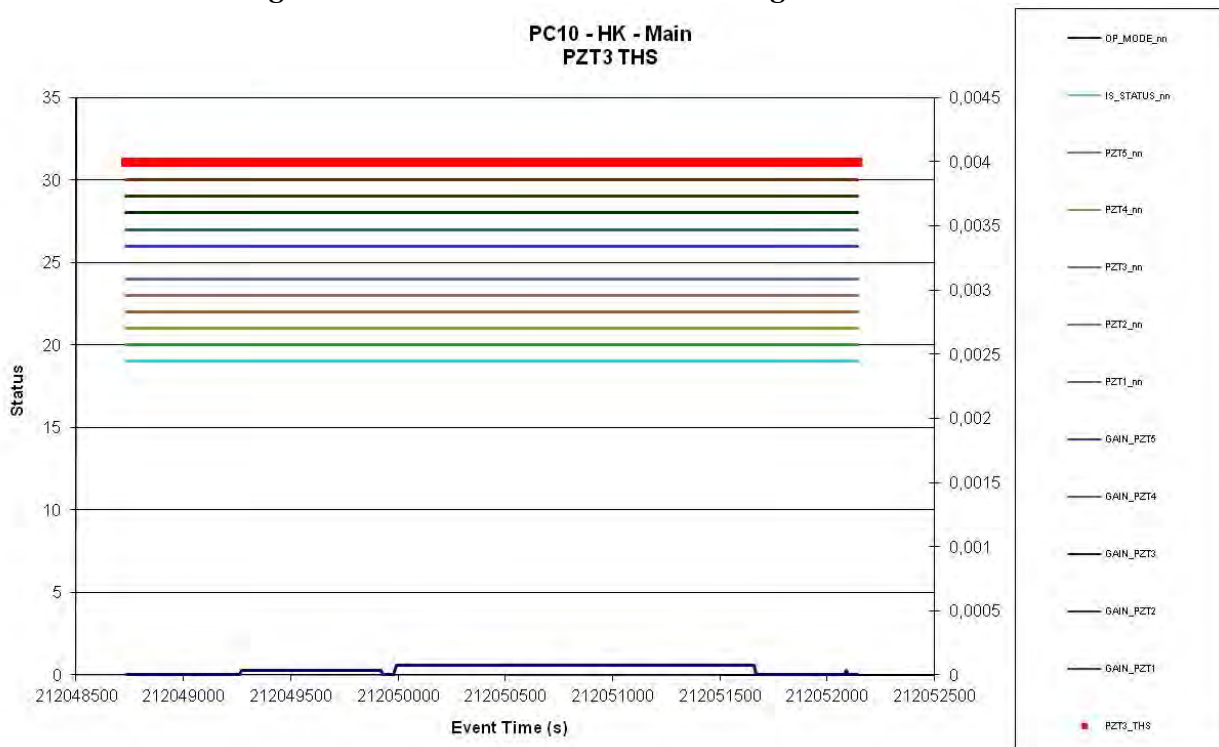
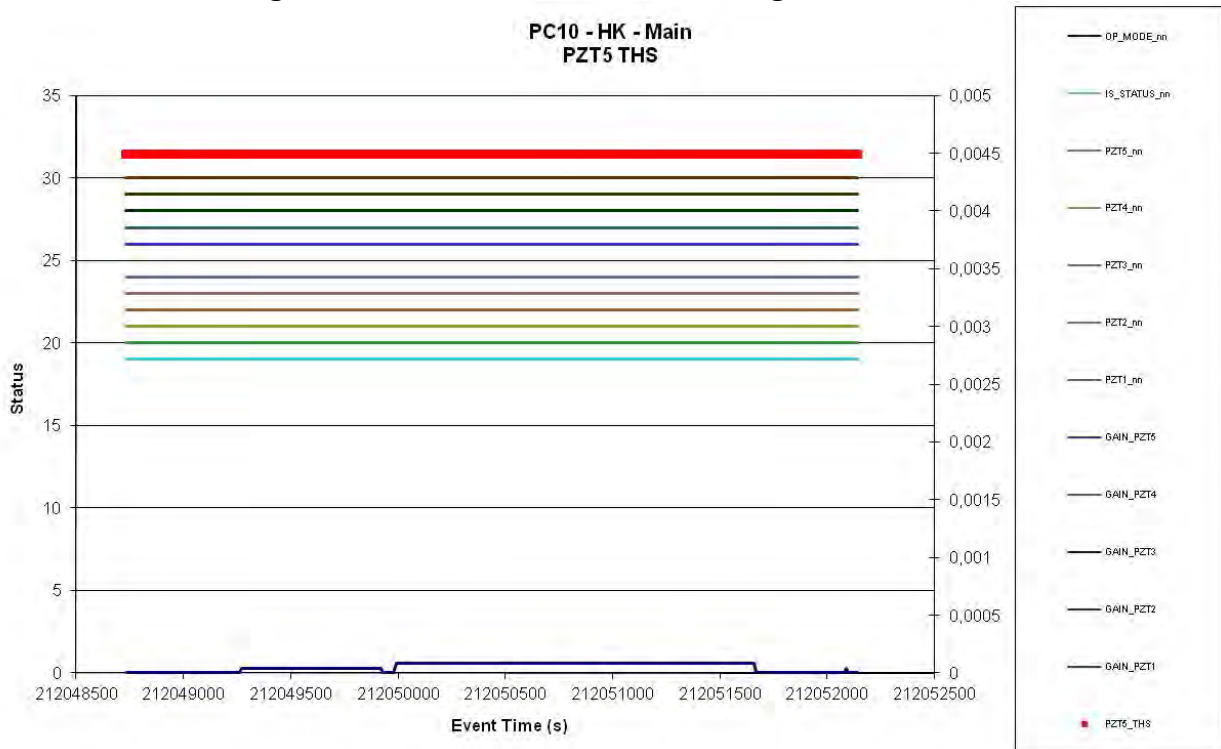


Figure 9.3-2. IS PZT 5 Thresholds change vs. time – Main



9.4 MICRO BALANCE SYSTEM (MBS)

9.4.1 MBS – Status

Figure 9.4-1. MBS Operation Status vs. time – Main

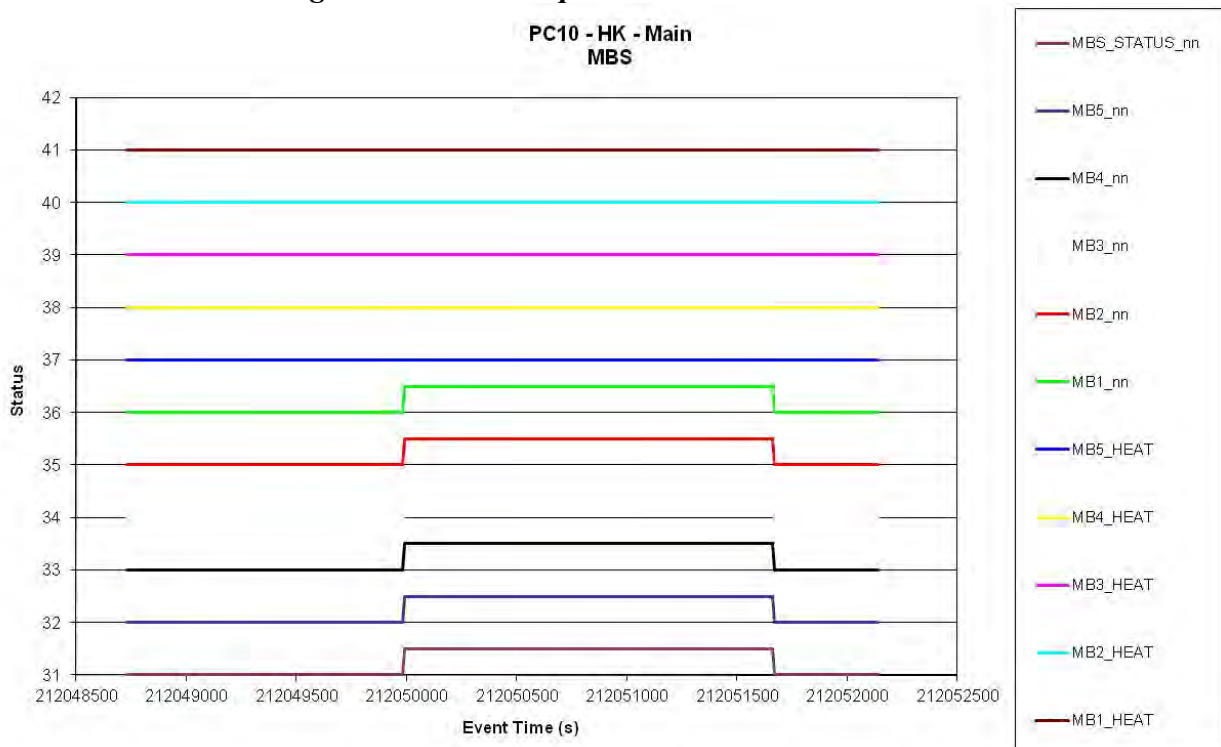


Figure 9.4-2. MBSs Temperature vs. time (SCI) – Main

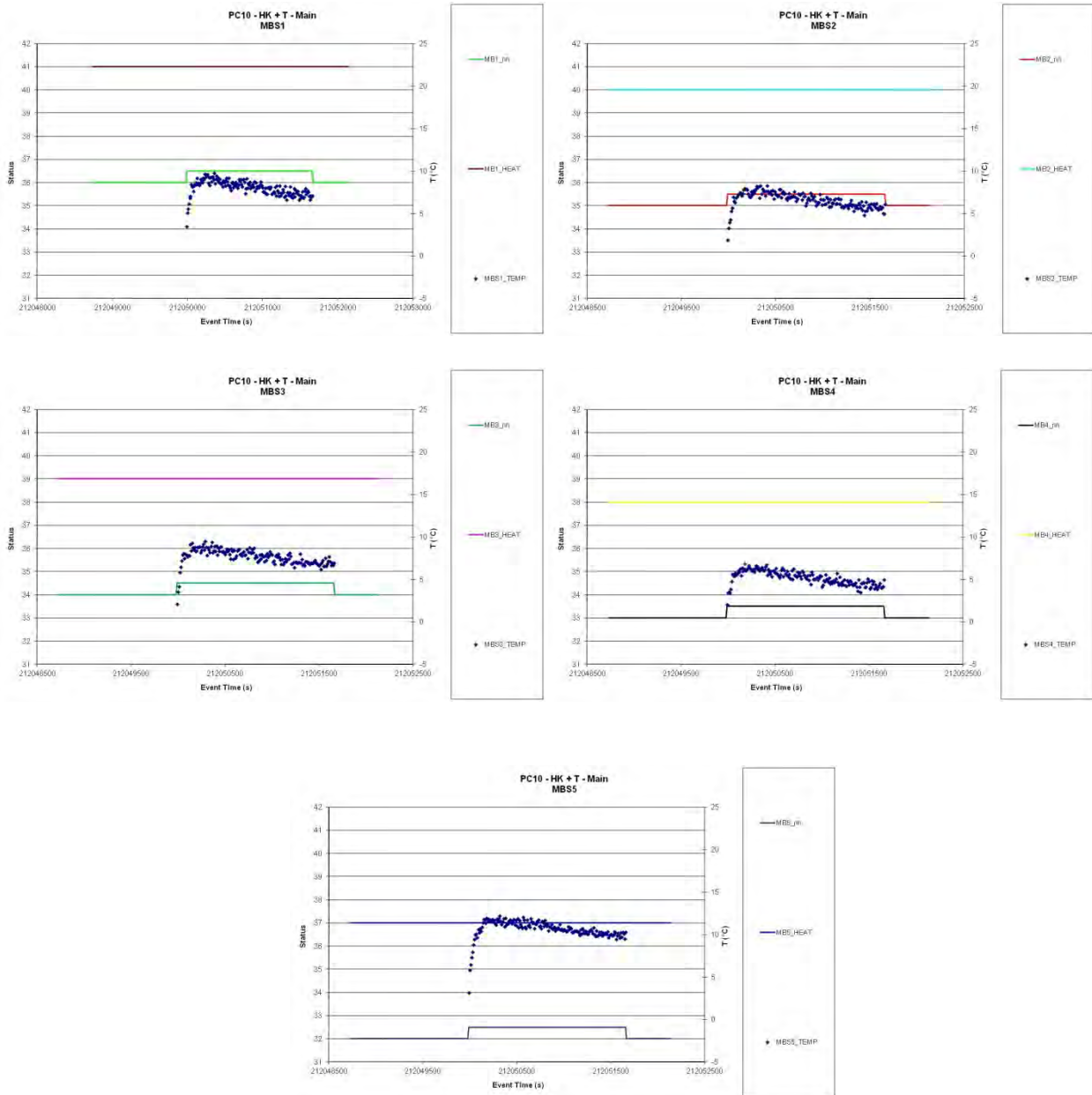
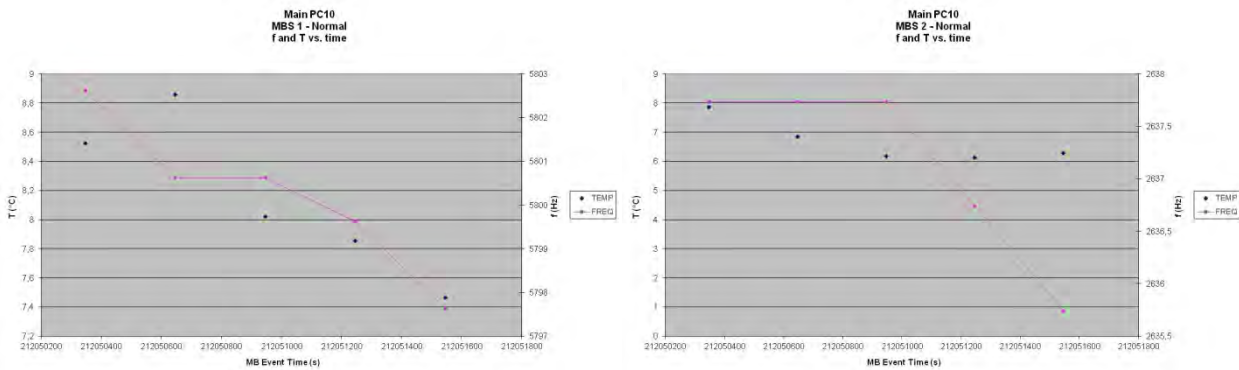
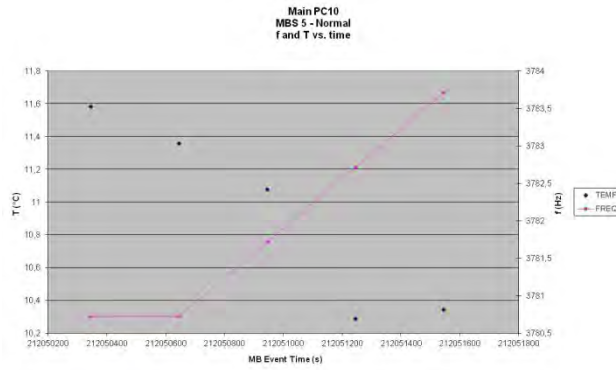
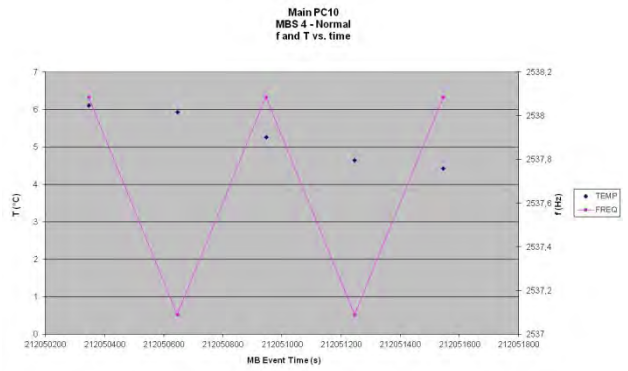
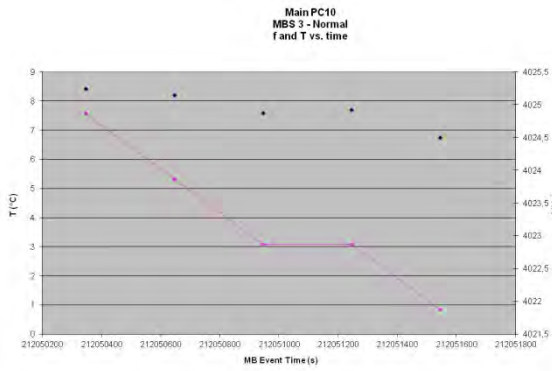


Figure 9.4-3. MBSs Frequency and Temperature vs. time– Main





10. PC10 DATA ANALYSIS – MAIN INTERFACE (GD_INT)
10.1 GIADA STATUS

Figure 10.1-1. HK Status of GIADA vs. time – Main

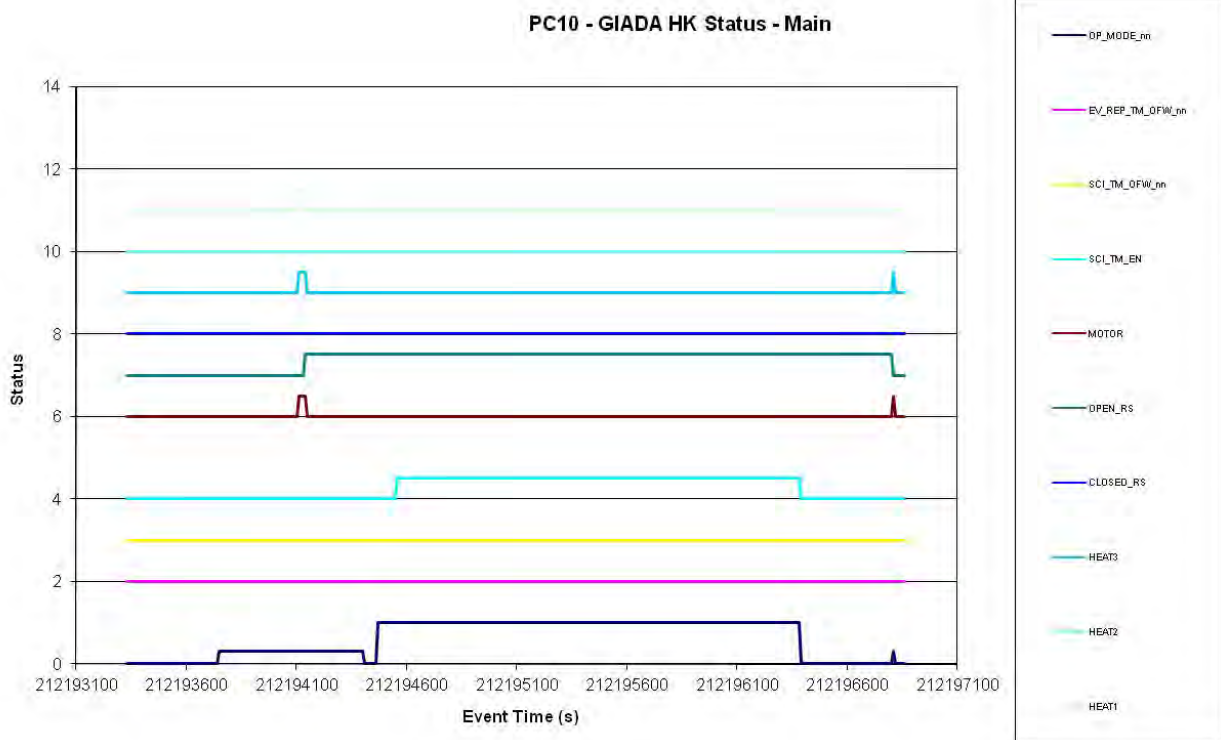


Figure 10.1-2. Power profile and Power Supply temperature vs. time - HK, Main

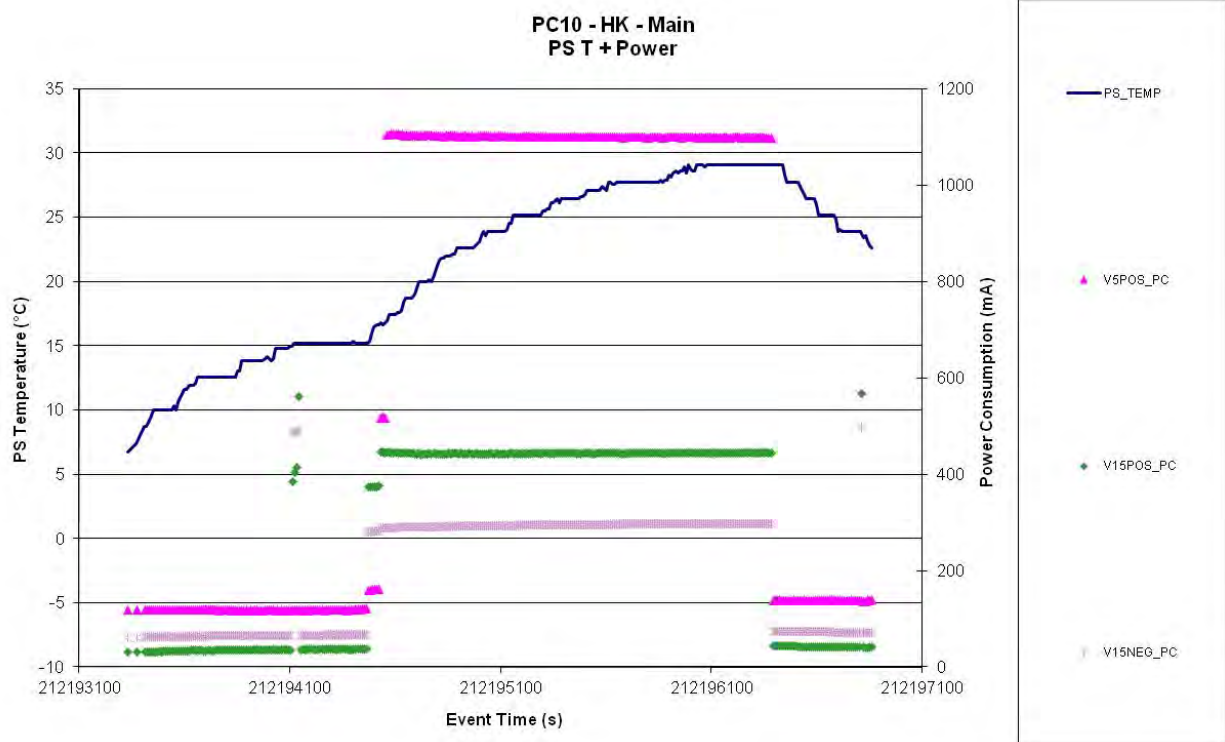


Figure 10.1-3. Evolution of temperatures of system elements vs. time - HK, Main

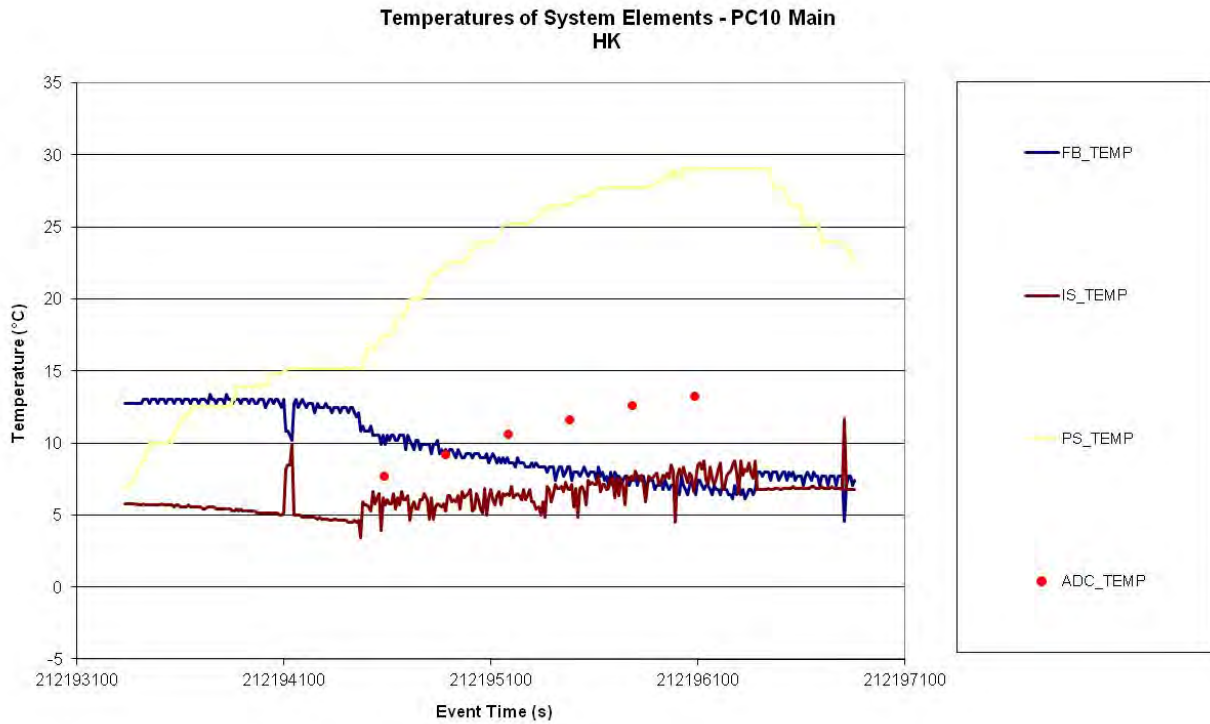


Figure 10.1-4. Evolution of temperatures of sub-systems vs. time with instrument in Normal Mode– Main

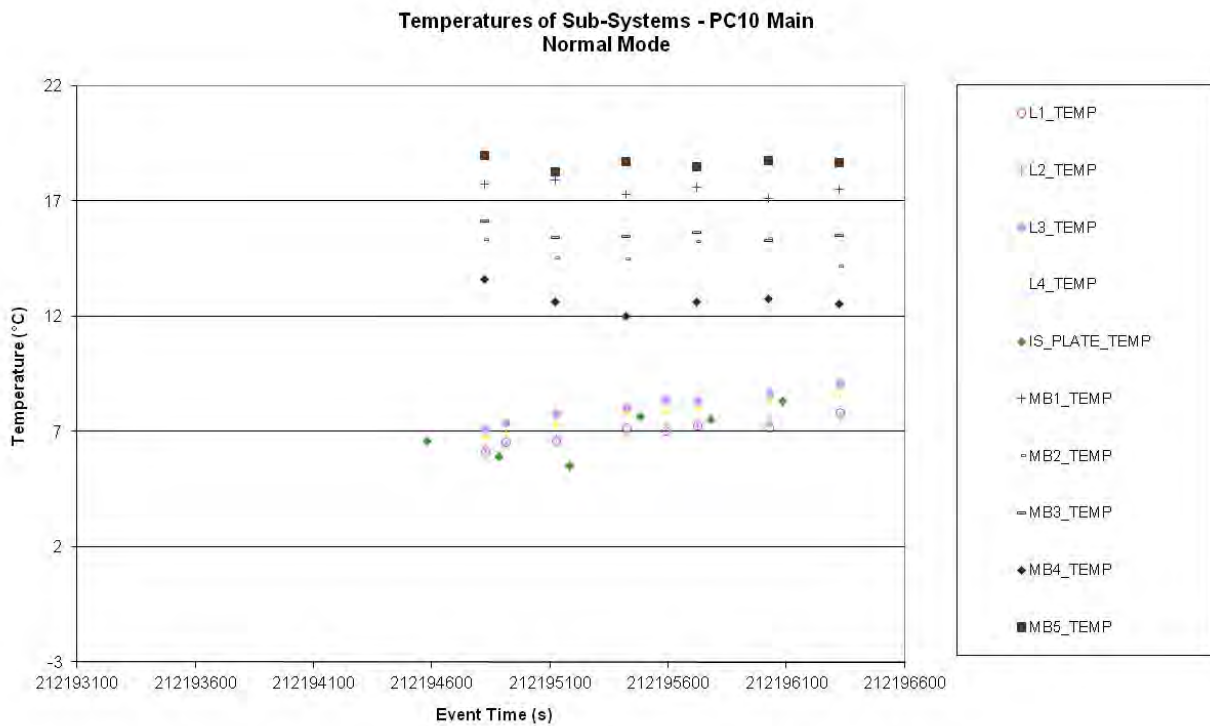


Figure 10.1-5. HK Status versus Temperatures of system elements – Main

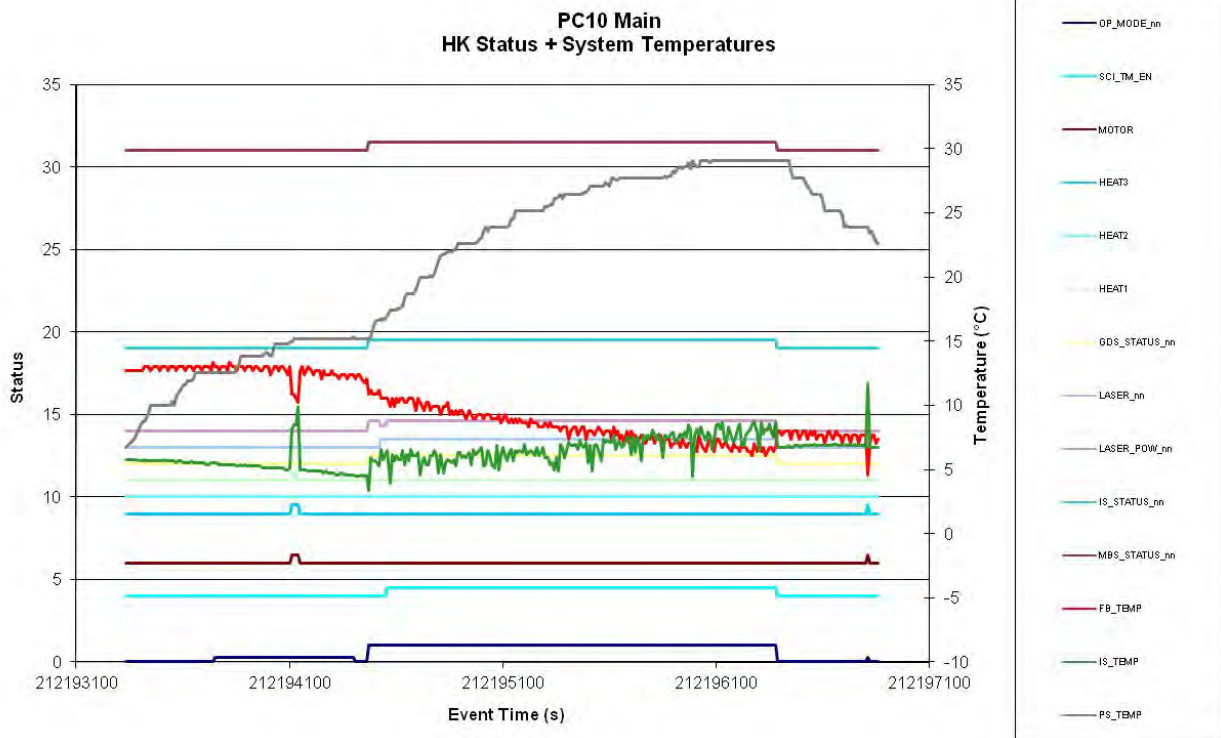
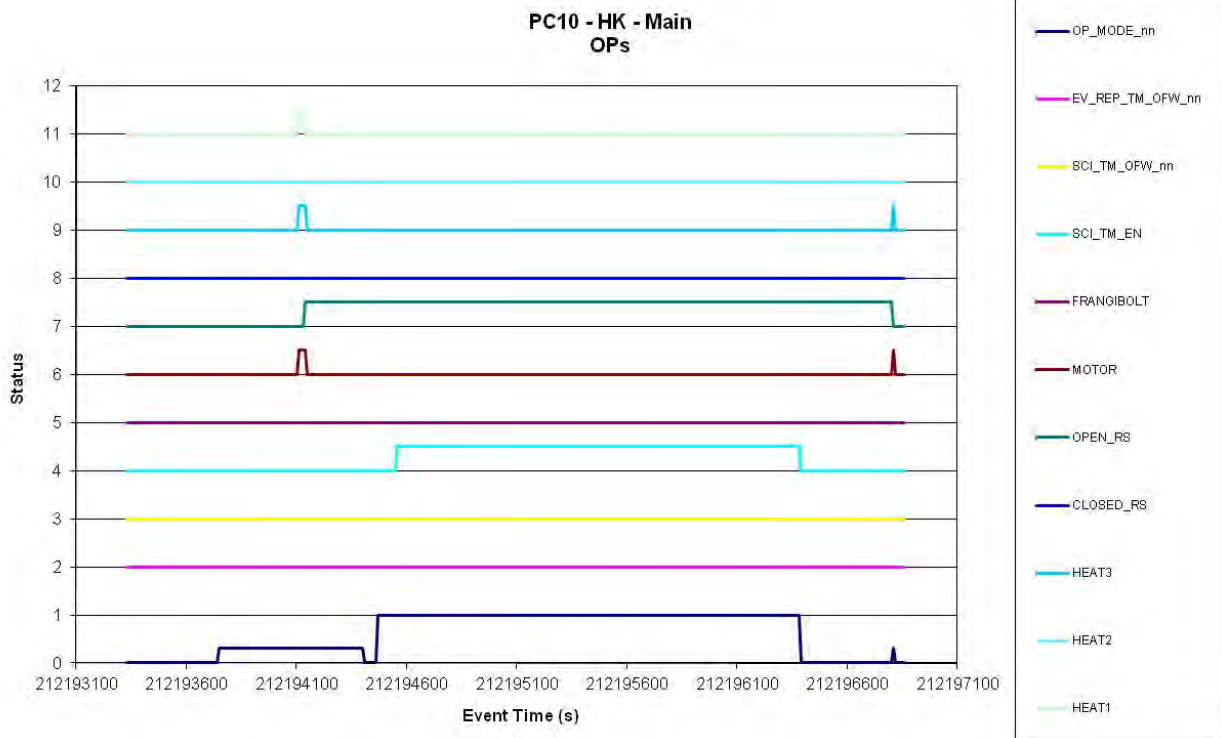


Figure 10.1-6. Operation Status versus Temperatures of system elements – Main
In the diagram are reported operative parameters with relevant variations.



10.2 GRAIN DETECTION SYSTEM (GDS)

10.2.1 GDS – Status

Figure 10.2-1. GDS Operation Status vs. time – Main

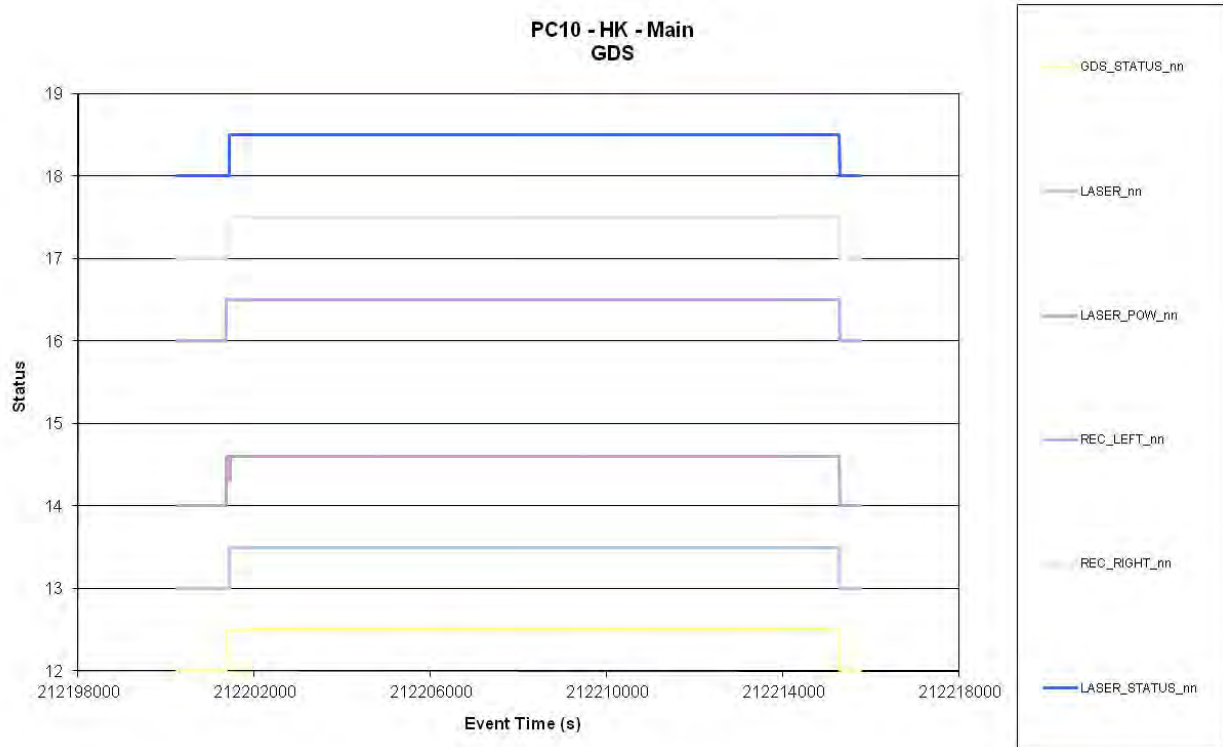


Figure 10.2-2. GDS Thresholds change vs. time – Main

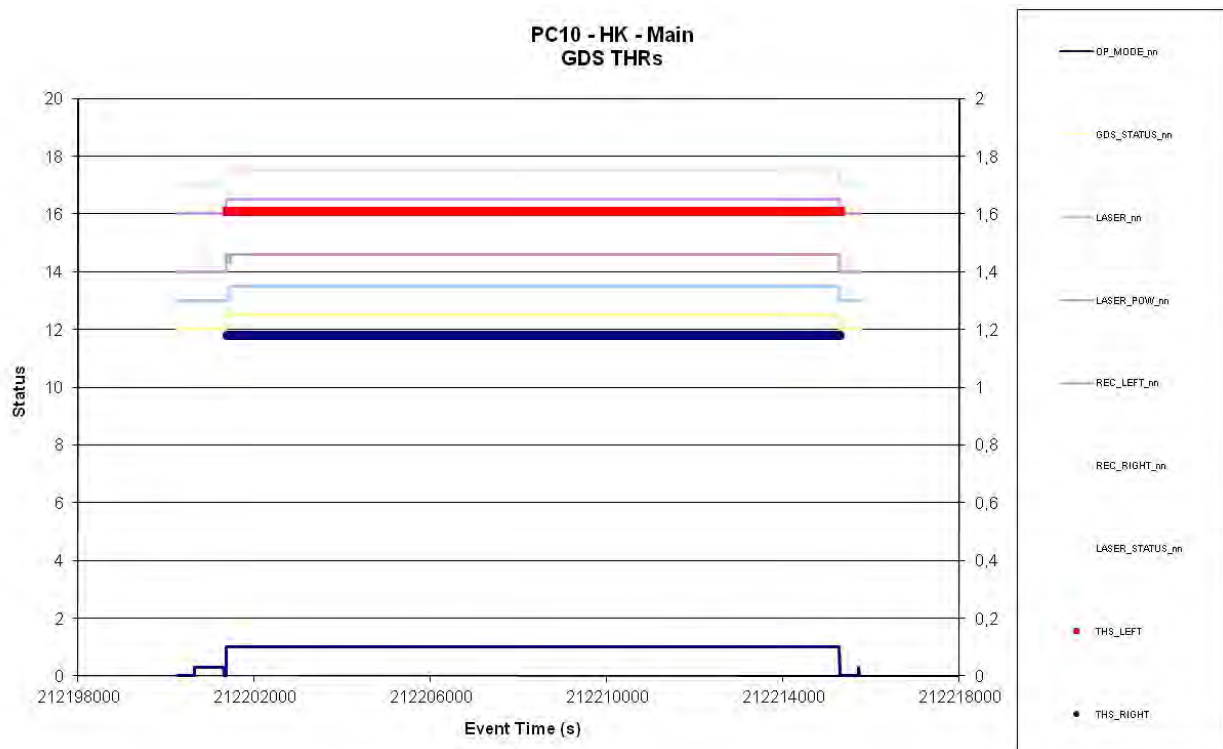


Figure 10.2-3. GDS Laser Temperatures vs. time– Main

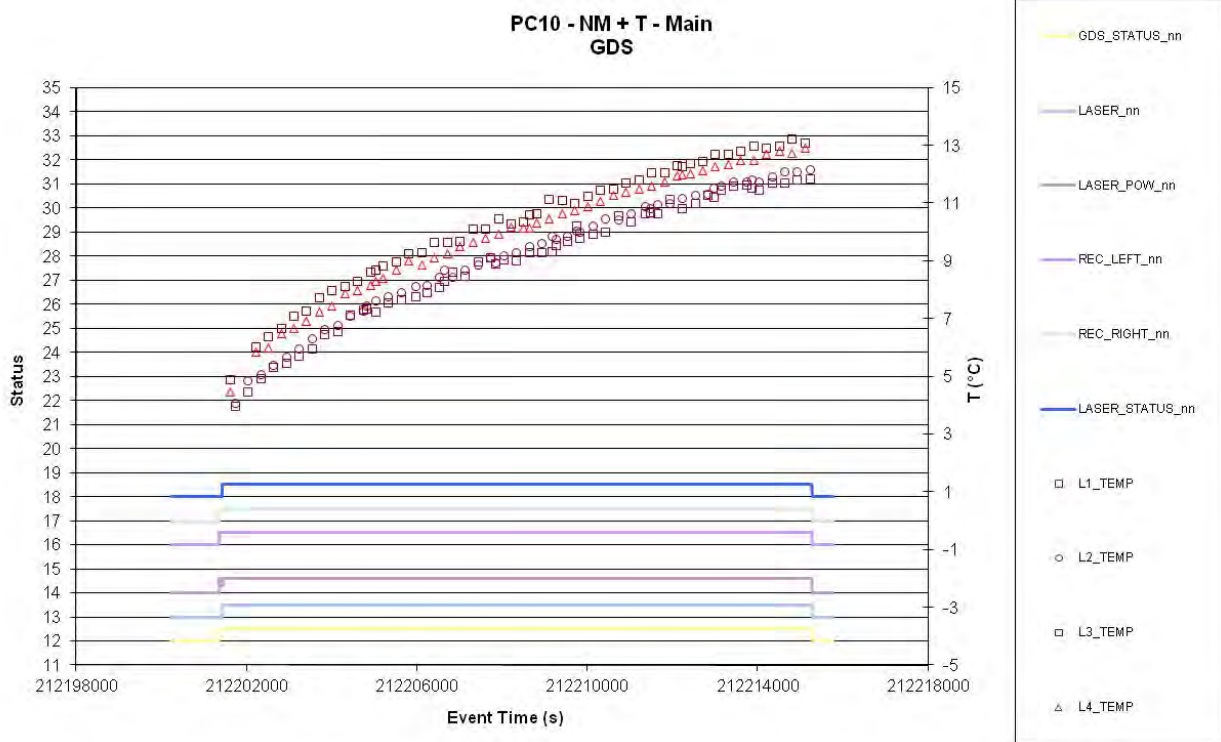


Figure 10.2-4. GDS Laser Monitor vs. time– Main

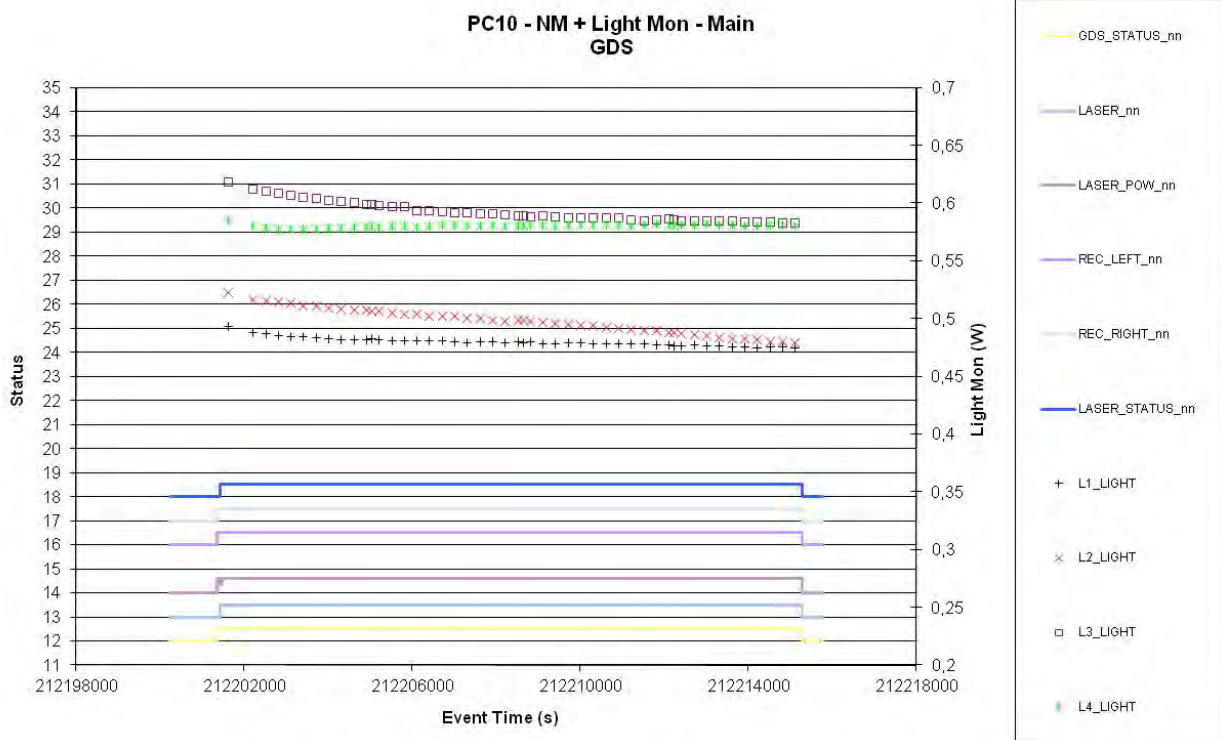


Figure 10.2-5. Lasers Light Monitor versus Temperature (HK, HK-SCI, SCI) – Main

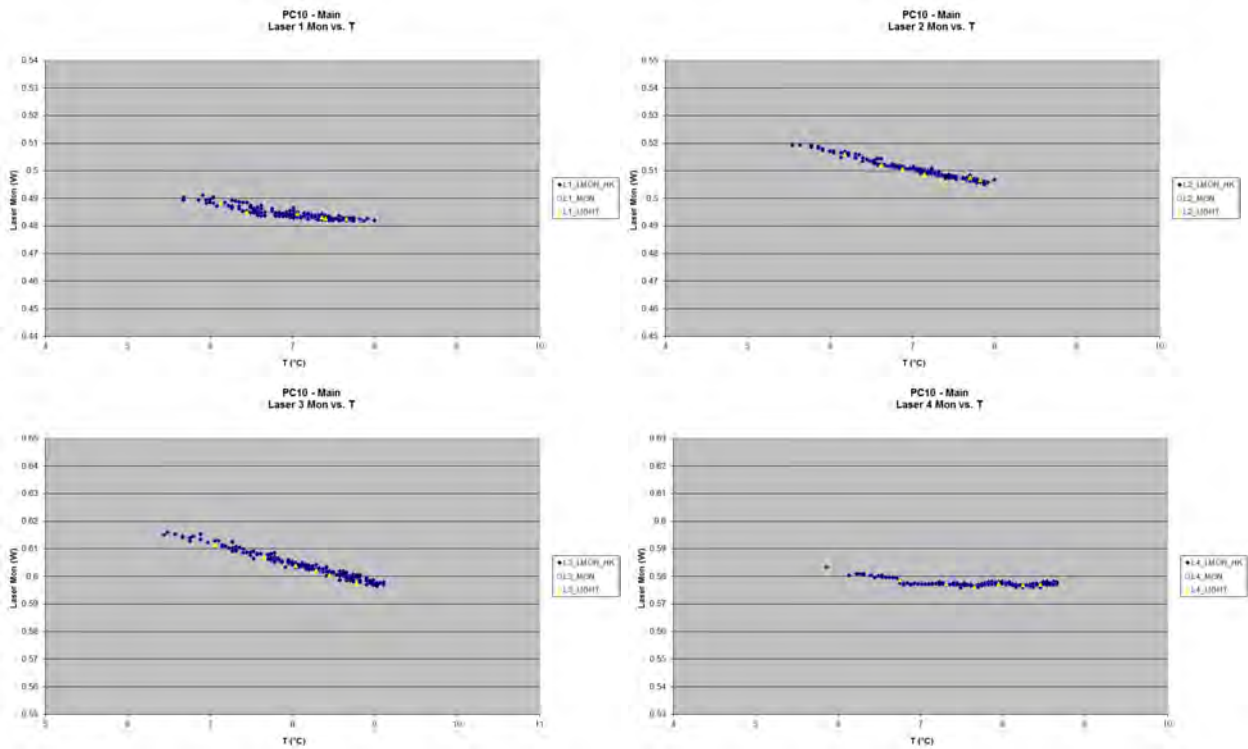
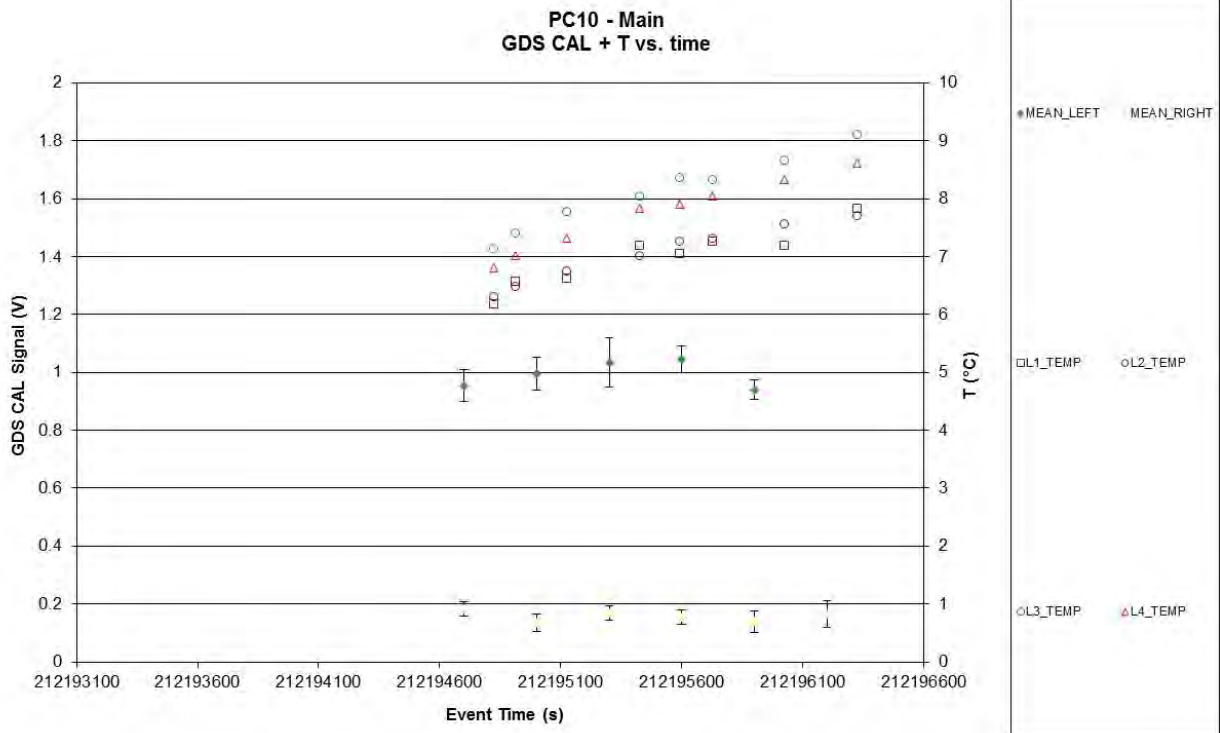


Figure 10.2-6. GDS Calibration Values vs. time– Main



10.3 IMPACT SENSOR (IS)

10.3.1 IS - Status

Figure 10.3-1. IS Operation Status vs. time - Main

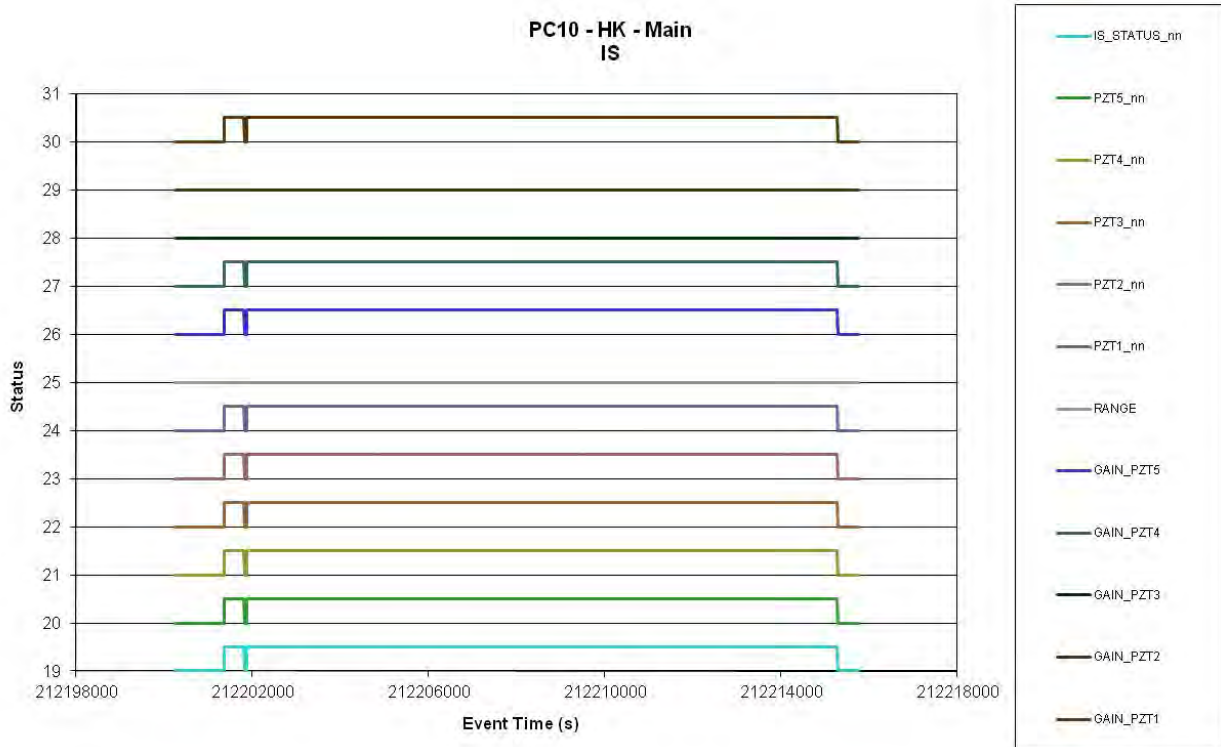


Figure 10.3-2. IS PZT 3 Thresholds change vs. time - Main

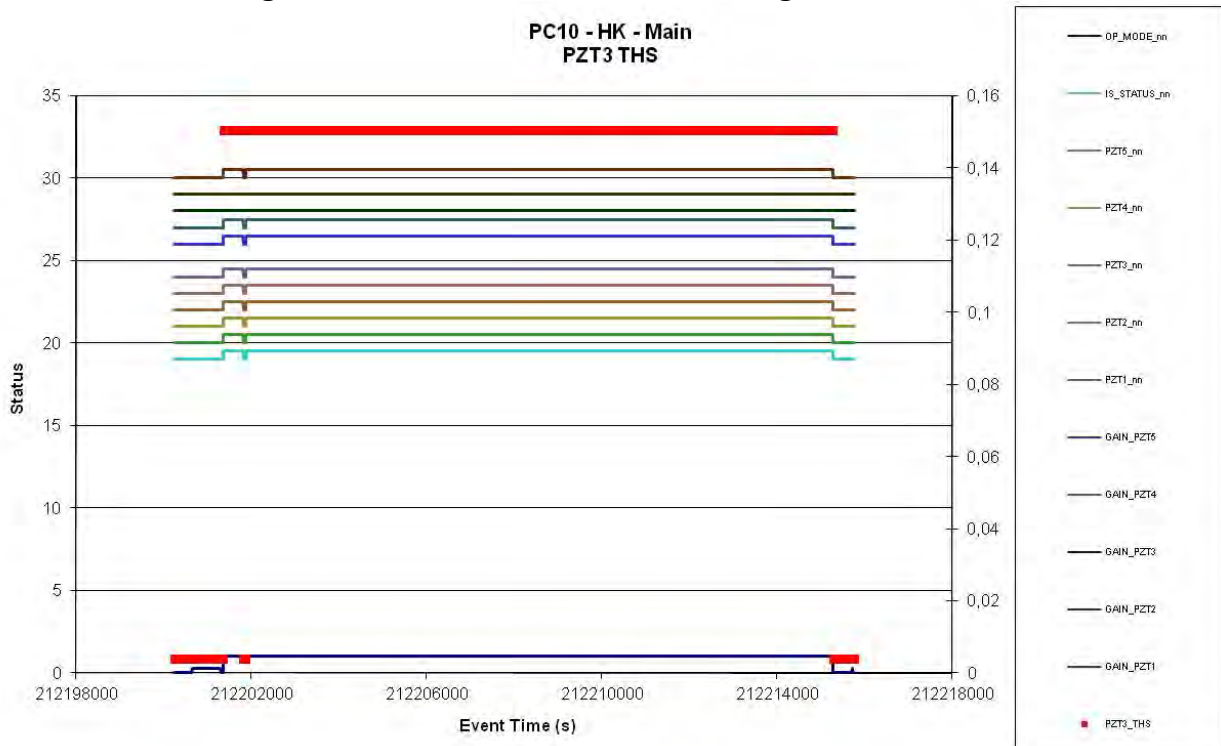


Figure 10.3-3. IS PZT 5 Thresholds change vs. time – Main

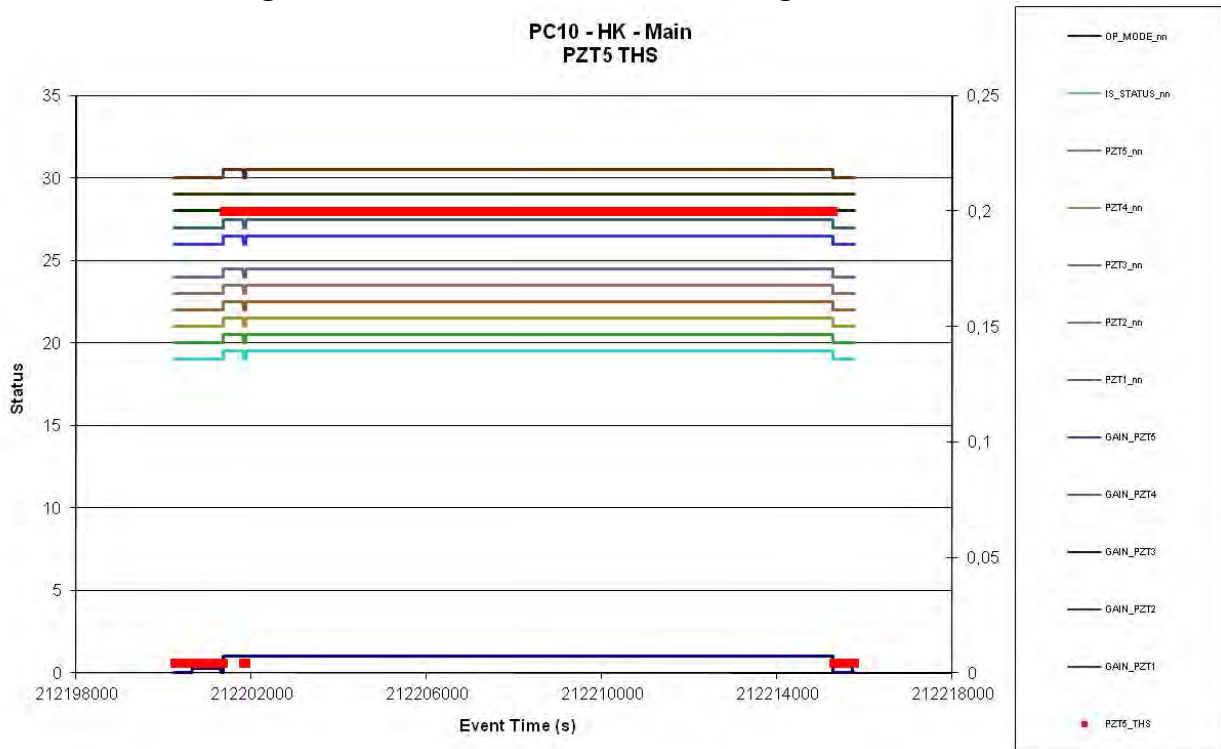
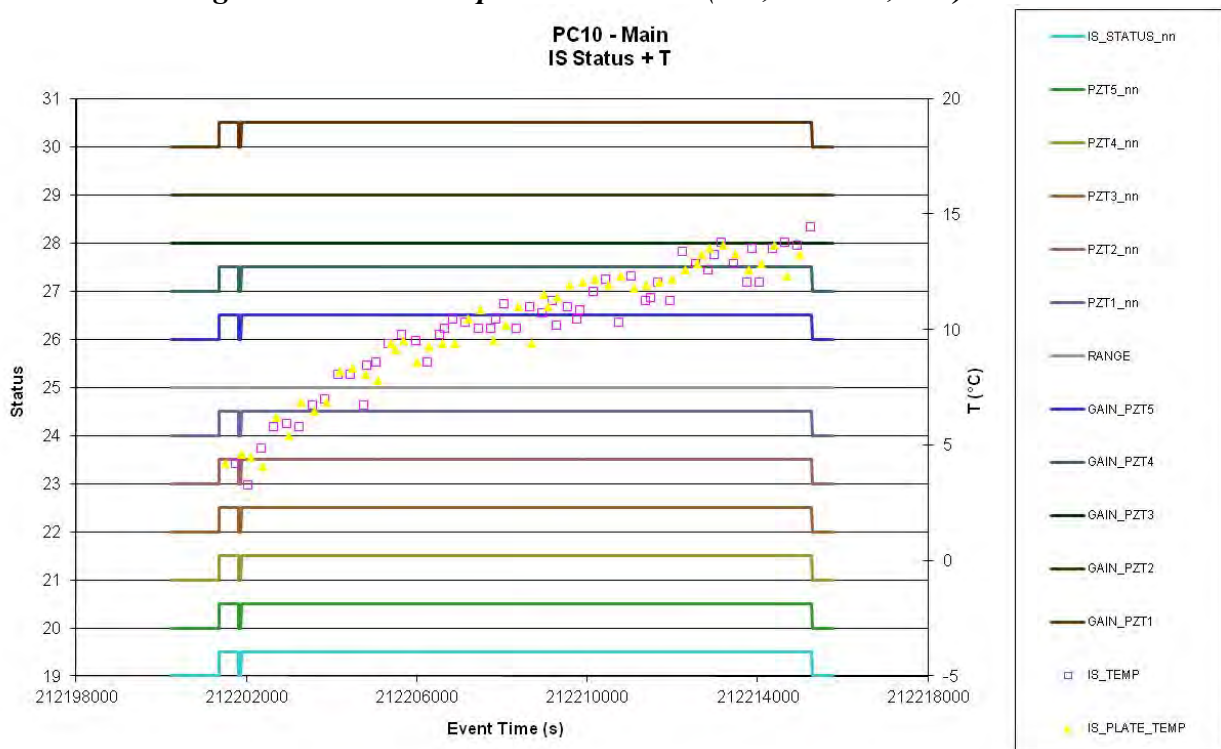


Figure 10.3-4. IS Temperature vs. time (HK, HK-SCI, SCI) – Main



10.3.1.1 CAL

Figure 10.3-5. PZTs Mean and St Dev. CAL vs. time – Main

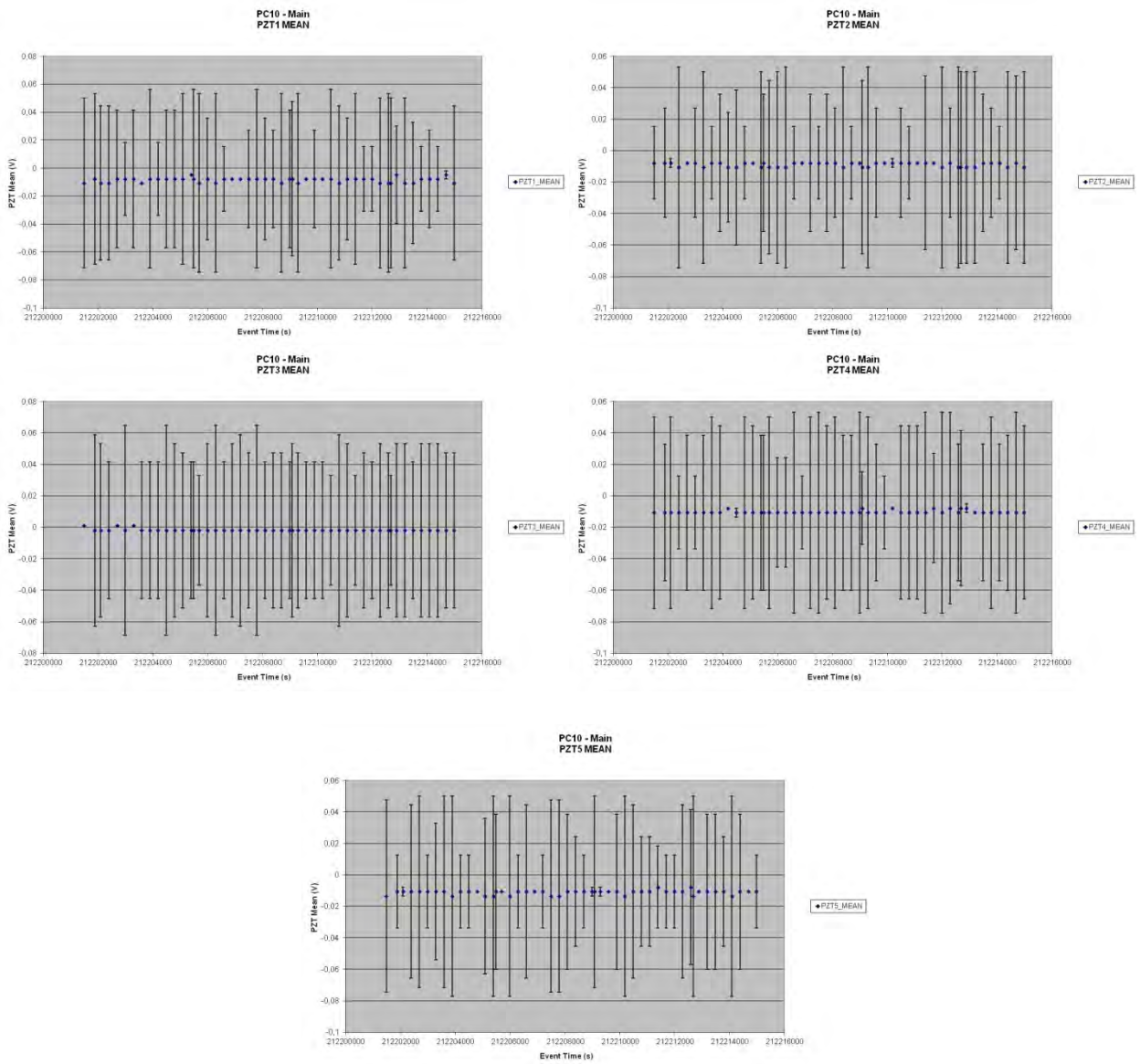


Figure 10.3-6. Reference Voltages for IS calibration vs. time – Main
Voltages values for the calibrator don't show level variation

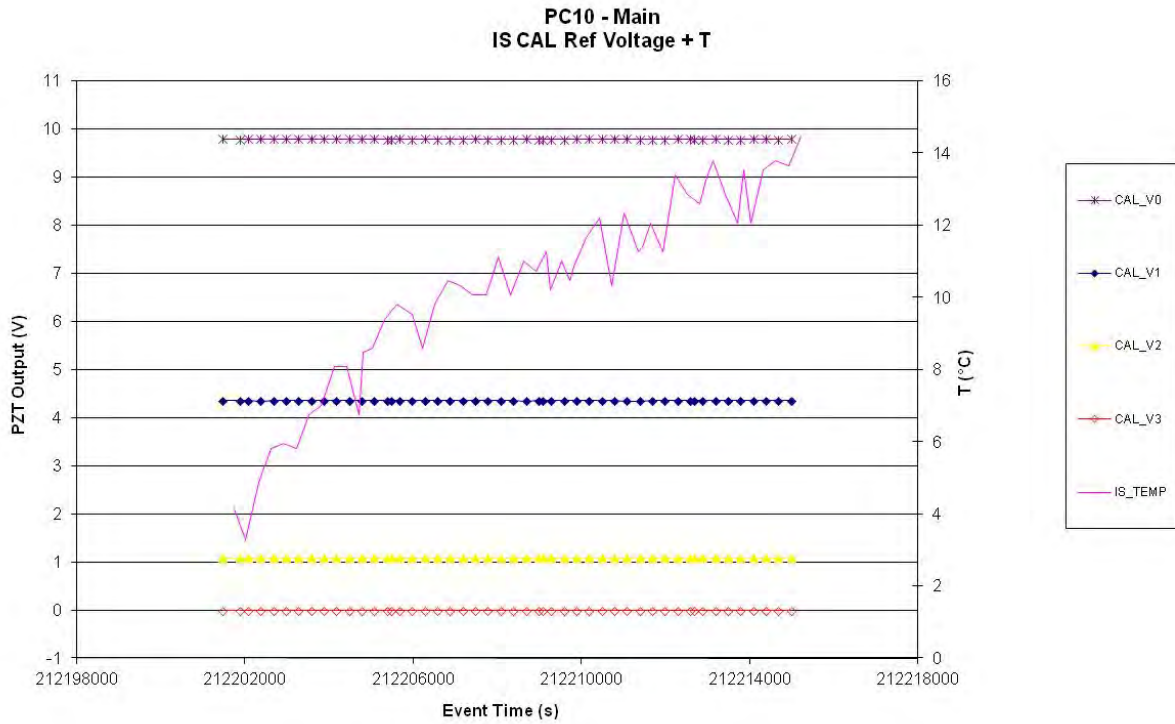
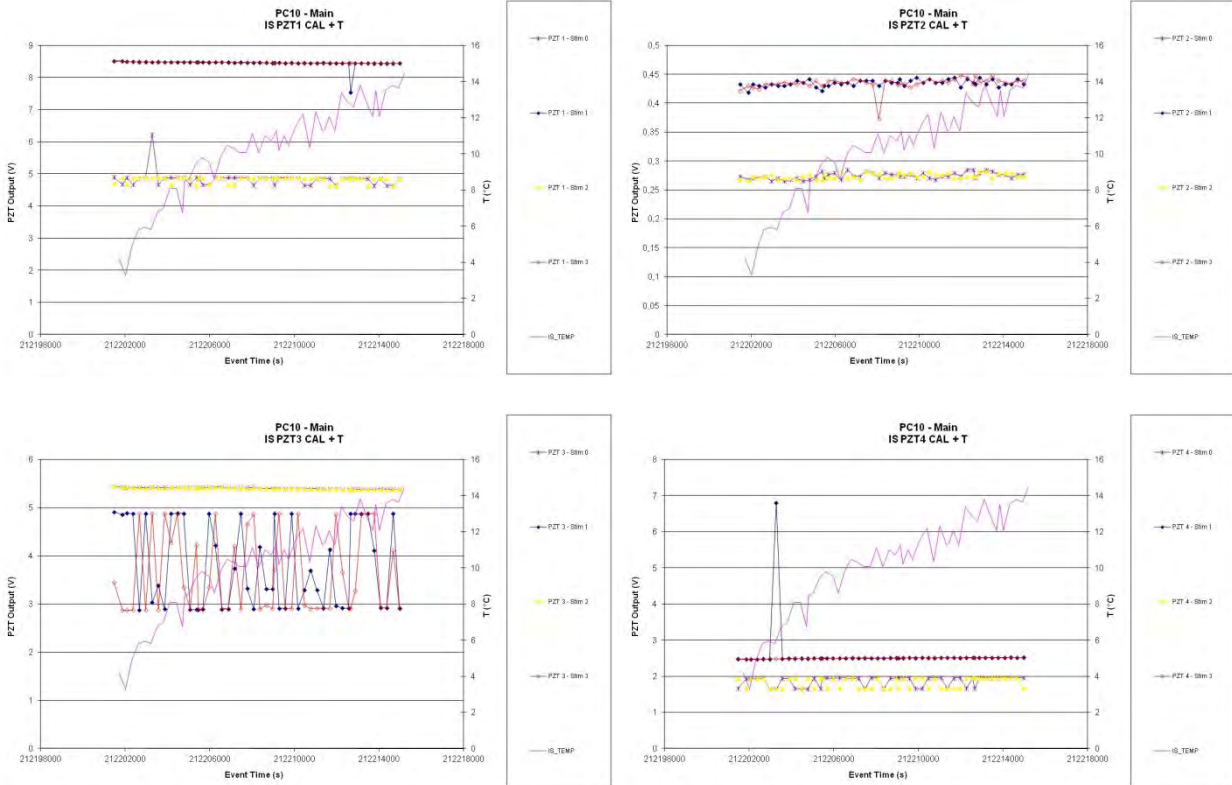
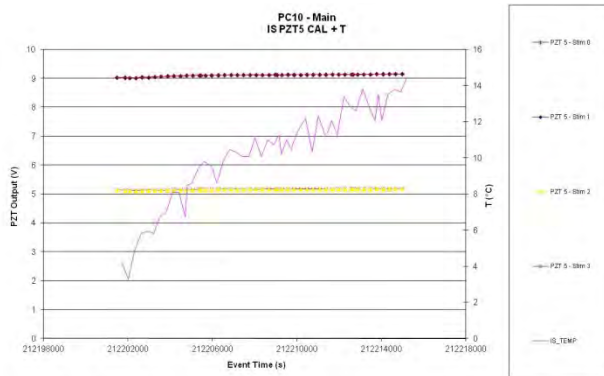


Figure 10.3-7. PZTs CAL Signal vs. time – Main





10.4 MICRO BALANCE SYSTEM (MBS)

10.4.1 MBS – Status

Figure 10.4-1. MBS Operation Status vs. time – Main

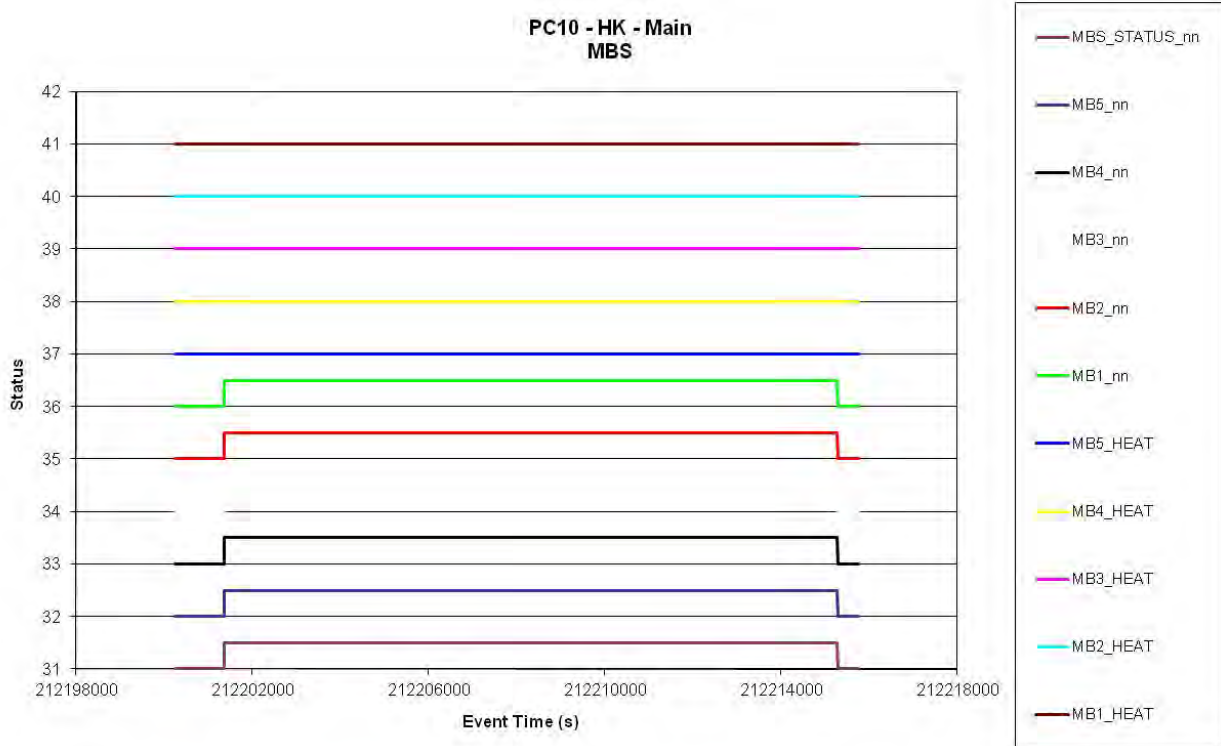
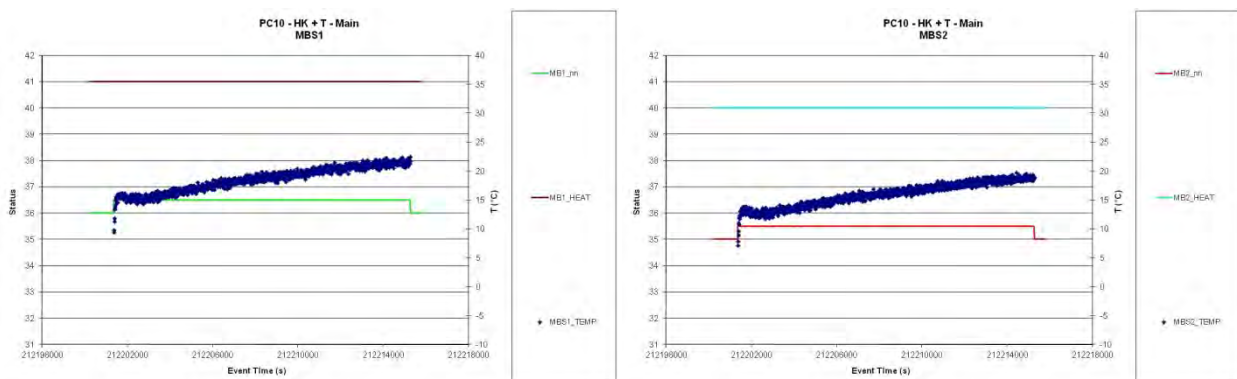


Figure 10.4-2. MBSs Temperature vs. time (SCI) – Main



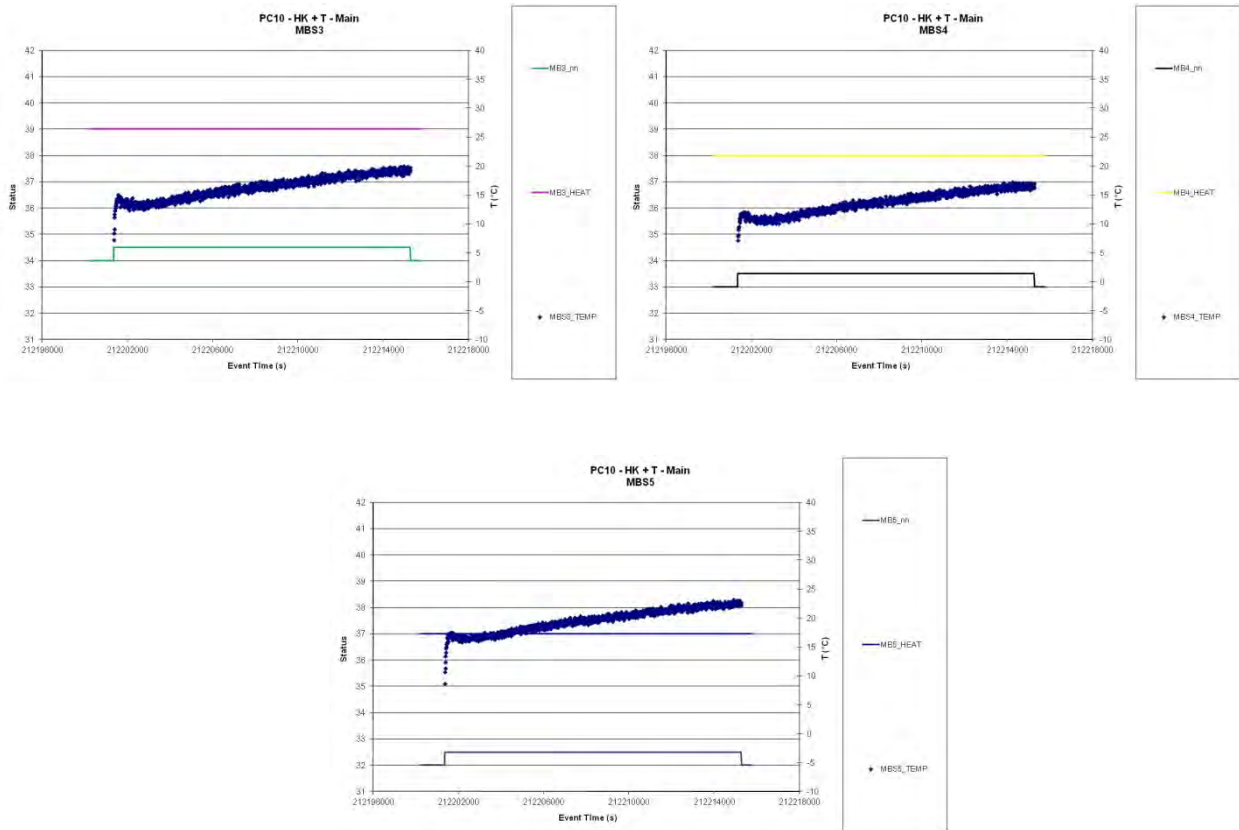
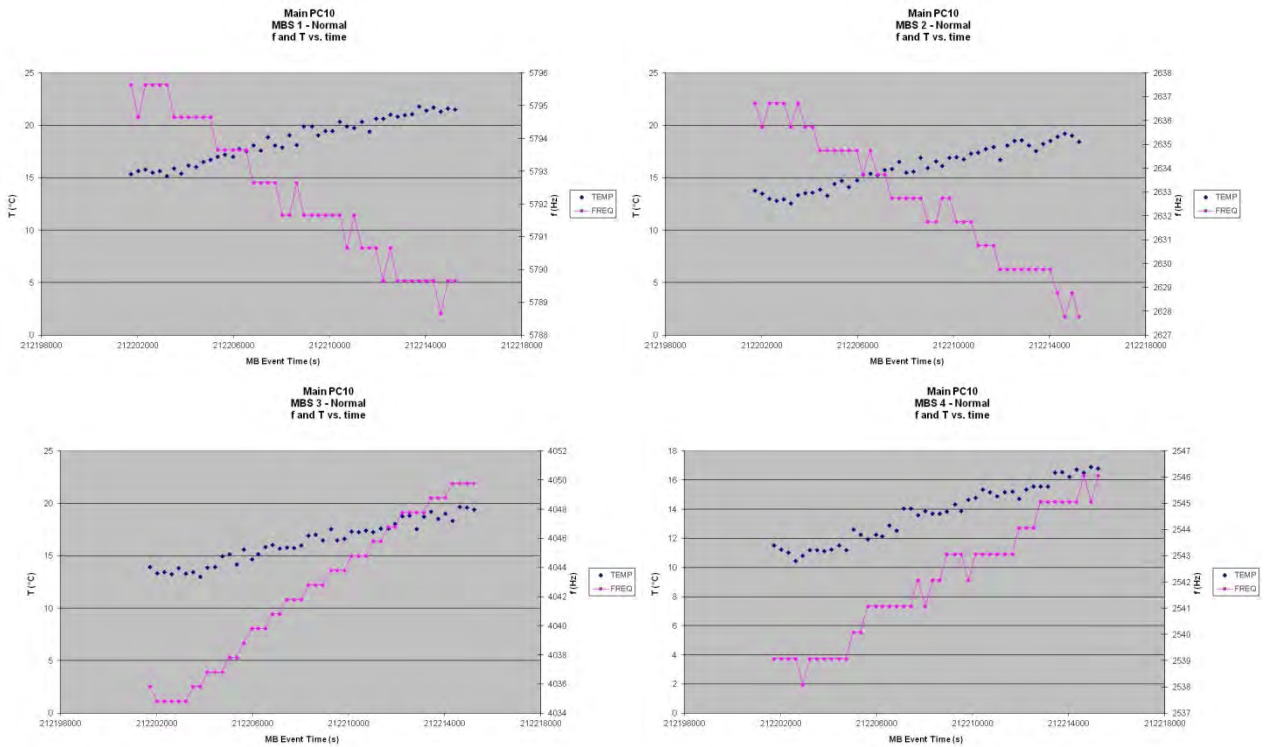
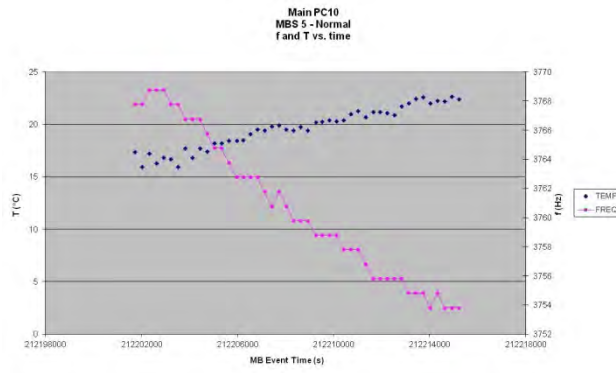


Figure 10.4-3. MBSs Frequency and Temperature vs. time– Main





11. TIMELINES FOR GIADA PC10

11.1 TIMELINE FOR MAIN INTERFACE (GD01)

```
# $Log: OIOR_PIHRSO_D_0014_GD_01M__00045.ROS,v $
#
# Revision 1.9  2009/06/22 12:00:00  GIADA
# Update and optimization of timing amongst all the sequences: now GIADA is
# fully operating
# in Normal Mode after only 25 minutes.
# The sequence AGDS002A (Patch CT v.flight 1) has been removed as it was
# unnecessary.
#
# Revision 1.8  2006/10/07 11:22:23  GIADA
# timing changed after results of PC2; sequences updated after PC1 have internal
# timing
# slightly different wrt previous sequences and requires this correction in the
# timeline
# for future PCn. Also IS and GDS thresholds have been modified.
#
# Revision 1.7  2006/09/05 11:22:23  vdhiri
# Updated to have relative timing. Note No Generic Switch ON/OFF used. Use in
# PC4/Passive PCn.
#
# Revision 1.6  2006/07/13 09:03:58  vdhiri
# Updated for PC3. And use of top level itl that was necessary for use of PORG.
#
# Revision 1.5  2006/01/24 18:51:20  kwirth
# Final GD OIOR for PC2.
# Original filename: OIOR_PIHRSO_D_0000_GD_PCA3__00013.ROS.
#
# Version  1.3  2005/12/12 giada MAIN for PCn
# Passive Checkout OIOR for GD after sequences update
# RSOC Assumption MSP I1
#
#=====#
# Filename:      OIOR_PIHRSO_D_0014_GD_01M__00045.ROS
# Type:         Input Timeline file
#
# Description:   Passive Check-Out GD adapted to sequences updating
#
#
# Author:       PP, AA
#
#              GIADA
#
# Date:         22 June 2009
#
#
# Proposed by  GIADA team
#
# (c) ESA/Estec
#
#-----#
#=====#

# EPS required, but RSOC will use CVS version
Version: 00001
```



```
+000_00:23:30    GIADA NORMAL    AGDS037A ( \
                  VGDS037A = On [ENG])    # Set IS On/Off
```

```
+000_00:25:00    GIADA NORMAL    AGDS120A ( \
                  VGDS0010 = 0xF8 \
                  VGDS0011 = 0x04 \ # Calibrate IS, GDS,
                                      MBS
                  REPEAT = 109 \
                  SEPARATION = 00:05:00 )
```

Description: "Change GIADA settings and check effects"

```
+000_09:30:00    GIADA NORMAL    AGDF100A # Self-interference test
```

```
+000_10:30:00    GIADA NORMAL    AGDF055A # MBS heating
```

```
#####
# Description: "2. | Shut down"
#####
```

```
+000_11:30:00    GIADA NORMAL    AGDF060A # Go to Safe mode & Power-off
```

```
#####END#####
```

11.2 TIMELINE FOR REDUNDANT INTERFACE (GD01)

```
# $Log: OIOR_PIHRSO_D_0014_GD_01R___00046.ROS,v $
#
# Revision 1.9  2009/06/22 12:00:00  GIADA
# Update and optimization of timing amongst all the sequences: now GIADA is
# fully operating
# in Normal Mode after only 25 minutes.
# The sequence AGDS002A (Patch CT v.flight 1) has been removed as it was
# unnecessary.
#
# Revision 1.8  2006/10/07 11:22:23  GIADA
# timing changed after results of PC2; sequences updated after PC1 have internal
# timing
# slightly different wrt previous sequences and requires this correction in the
# timeline
# for future PCn. Also IS and GDS thresholds have been modified.
#
# Revision 1.7  2006/09/05 11:22:23  vdhiri
# Updated to have relative timing. Note No Generic Switch ON/OFF used. Use in
# PC4/Passive PCn.
#
# Revision 1.6  2006/07/13 09:03:58  vdhiri
# Updated for PC3. And use of top level itl that was necessary for use of PORG.
#
# Revision 1.5  2006/01/24 18:51:46  kwirth
# Final GD OIOR for PC2.
# Original filename: OIOR_PIHRSO_D_0000_GD_PCB3___00014.ROS.
#
# Version 1.3  2005/12/12 giada REDUNDANT for PCn
# Passive Checkout OIOR for GD after sequences update
# RSOC Assumption MSP I1
#
#####
# Filename:      OIOR_PIHRSO_D_0014_GD_01R___00046.ROS
```

```
# Type:      Input Timeline file
#
# Description:  Passive Check-Out GD adapted to sequences updating
#
# Author:     PP, AA
#
#            GIADA
#
# Date:       22 June 2009
#
# Proposed by GIADA team
#
# (c) ESA/Estec
#
#-----#
#=====#

# EPS required, but RSOC will use CVS version
Version: 00001

Ref_date: 19-Sep-2009
Start_time: 000_00:00:00
End_time: 001_00:00:00

#-----#
# Description: "1. | Switch on and test - Redundant I/F"
#-----#

+000_12:00:00    GIADA    OFF AGDS001A ( \
                VGDS0001B = "red. branch" [ENG] \ # GIADA on
                VGDS0001A = "YES" [ENG]) # Context exists
                Red IF

+000_12:03:00    GIADA SAFE AGDS003A # Patch SW v.2.3

+000_12:08:00    GIADA SAFE AGDS035A # Go to Cover Mode

+000_12:09:00    GIADA COVER AGDF090A # Open cover

Description: "5 minutes waiting, then 1 min. for OBCP execution and 4 min. for a
margin of heating time"

+000_12:19:00    GIADA COVER AGDS065A # Go to Safe mode

+000_12:20:00    GIADA SAFE AGDS110A # Go to Normal mode

Description: "GIADA operative in normal mode"

+000_12:22:00    GIADA NORMAL    AGDS038A ( \
                VGDS038A = 35 \
                VGDS038B = 26 ) # Set GDS L and R
                thresholds

+000_12:22:30    GIADA NORMAL    AGDS037A ( \
                VGDS037A = Off [ENG]) # Set IS On/Off

+000_12:23:00    GIADA NORMAL    AGDS036A ( \
```

```

VGDS0031 = 0x05 \
VGDS0032 = 0x05 \
VGDS0033 = 0x0f \
VGDS0034 = 0x05 \
VGDS0035 = 0x14 \
VGDS0018 = Enabled [ENG] \
VGDS0019 = Enabled [ENG] \
VGDS0020 = Enabled [ENG] \
VGDS0021 = Enabled [ENG] \
VGDS0022 = Enabled [ENG] \
VGDS0023 = Low [ENG] \
VGDS0025 = High [ENG] \
VGDS0026 = High [ENG] \
VGDS0027 = High [ENG] \
VGDS0028 = High [ENG] \
VGDS0029 = High [ENG]) # Set IS status
                                and thresholds
+000_12:23:30    GIADA NORMAL    AGDS037A ( \
                                VGDS037A = On [ENG]) # Set IS On/Off
+000_12:25:00    GIADA NORMAL    AGDS120A ( \
                                VGDS0010 = 0xF8 \
                                VGDS0011 = 0x04 \ # Calibrate IS, GDS,
                                                MBS
                                REPEAT = 109 \
                                SEPARATION = 00:05:00 )

Description: "Change GIADA settings and check effects"

+000_21:30:00    GIADA NORMAL    AGDF100A # Self-interference test
+000_22:30:00    GIADA NORMAL    AGDF055A # MBS heating

#=====#
# Description: "2. | Shut down"
#=====#

+000_23:30:00    GIADA NORMAL    AGDF060A # Go to Safe mode & Power-off

#=====#
#=====#

```

11.3 TIMELINE FOR MAIN INTERFACE (GD02)

```

# $Log: OIOR_PIHRSO_D_0014_GD_02____00047.ROS,v $
#
# Version 1.0 2009/06/22 12:00:00 GIADA
# Set up GIADA for PC10 Interference test with VIRTIS.
# Testing GIADA Patch CF in NVRAM after GD03 execution.
#
#=====#
# Filename:      OIOR_PIHRSO_D_0014_GD_02____00047.ROS
# Type:         Input Timeline file
#
# Description:   Set up GIADA for PC10 Interference test with VIRTIS
#
#
# Author:      PP, AA

```

```

#
#           GIADA
#
# Date:           22 June 2009
#
#
# Proposed by GIADA team
#
# (c) ESA/Estec
#
#-----#
#=====#

# EPS required, but RSOC will use CVS version
Version: 00001

Ref_date: 22-Sep-2009
Start_time: 000_00:00:00
End_time: 000_04:25:00

#-----#
# Description: "1. | Switch on and interference test - Main I/F"
#-----#

+000_00:00:00      GIADA  OFF AGDS001A ( \
                   VGDS0001B = "nom. branch" [ENG] \ # GIADA on Main
                                     IF
                   VGDS0001A = "YES" [ENG]) # Context exists

+000_00:03:00      GIADA  SAFE AGDS003A # Patch SW v.2.3

+000_00:08:00      GIADA  SAFE AGDS035A # Go to Cover Mode

+000_00:09:00      GIADA  COVER AGDF090A # Open cover

Description: "5 minutes waiting, then 1 min. for OBCP execution and 4 min. for a
margin of heating time"

+000_00:19:00      GIADA  COVER AGDS065A # Go to Safe mode

+000_00:20:00      GIADA  SAFE AGDS110A # Go to Normal mode

Description: "GIADA operating in Normal mode"

+000_00:22:00      GIADA  NORMAL      AGDS120A ( \
                   VGDS0010 = 0xF8 \
                   VGDS0011 = 0x04 ) # Calibrate IS, GDS,
                                     MBS

+000_00:27:00      GIADA  NORMAL      AGDS038A ( \
                   VGDS038A = 35 \
                   VGDS038B = 26 ) # Set GDS L and R
                                     thresholds

+000_00:27:30      GIADA  NORMAL      AGDS037A ( \
                   VGDS037A = Off [ENG]) # Set IS On/Off

+000_00:28:00      GIADA  NORMAL      AGDS036A ( \
                   VGDS0031 = 0x05 \

```

```

VGDS0032 = 0x05 \
VGDS0033 = 0x0f \
VGDS0034 = 0x05 \
VGDS0035 = 0x14 \
VGDS0018 = Enabled [ENG] \
VGDS0019 = Enabled [ENG] \
VGDS0020 = Enabled [ENG] \
VGDS0021 = Enabled [ENG] \
VGDS0022 = Enabled [ENG] \
VGDS0023 = Low [ENG] \
VGDS0025 = High [ENG] \
VGDS0026 = High [ENG] \
VGDS0027 = High [ENG] \
VGDS0028 = High [ENG] \
VGDS0029 = High [ENG]) # Set IS status
                                and thresholds

```

```

+000_00:28:30    GIADA NORMAL    AGDS037A ( \
                                VGDS037A = On [ENG]) # Set IS On/Off

```

```

+000_00:32:00    GIADA NORMAL    AGDS120A ( \
                                VGDS0010 = 0xF8 \
                                VGDS0011 = 0x04 \ # Calibrate IS, GDS,
                                                MBS
                                REPEAT = 44 \
                                SEPARATION = 00:05:00 )

```

```

#=====#
# Description: "2. | Shut down"
#=====#

```

```

+000_04:12:00    GIADA NORMAL    AGDF060A # Go to Safe mode & Power-off

```

```

#=====END=====#

```

11.4 TIMELINE FOR MAIN INTERFACE (GD03)

```

# $Log: OIOR_PIHRSO_D_0014_GD_03____00048.ROS,v $
#
# Version 1.0 2009/06/22 12:00:00 GIADA
# Upload on-board of new Context File settings and GIADA test in Flux mode
during PC10.
#
#=====#
#
# Filename:      OIOR_PIHRSO_D_0014_GD_03____00048.ROS
# Type:         Input Timeline file
#
# Description:   Upload on-board of new Context File settings and GIADA test in
# Flux mode
#
#
# Author:       PP, AA
#
#               GIADA
#
# Date:         22 June 2009
#

```



```
VGDX0029 = 0x3500 \ # CF IS hyst temp
VGDX0030 = 0x0500 \ # CF IS thresholds 1
VGDX0031 = 0x0F05 \ # CF IS thresholds 2
VGDX0032 = 0x1405 \ # CF IS thresholds 3
VGDX0033 = 0x100E \ # CF IS time bet cal 1
VGDX0034 = 0x0000 \ # CF IS time bet cal 2
VGDX0035 = 0x04F8 \ # CF IS cal config
VGDX0036 = 0x009F \ # CF MBS status
VGDX0037 = 0x4B0A \ # CF MBS max temp
VGDX0038 = 0x00F8 \ # CF MBS temp checking
VGDX0039 = 0x2C01 \ # CF MBS time interval 1
VGDX0040 = 0x0000 \ # CF MBS time interval 2
VGDX0041 = 0xA40A \ # CF MBS max heat temp
VGDX0042 = 0x6801 \ # CF heating timeout 1
VGDX0043 = 0x0000 \ # CF heating timeout 2
VGDX0044 = 0x100E \ # CF MBS time bet cal 1
VGDX0045 = 0x0000 \ # CF MBS time bet cal 2
VGDX0046 = 0x6D1A \ # CF IS maxnop temp
VGDX0047 = 0xCE1D \ # CF IS min temp
VGDX0048 = 0xC719 \ # CF ME maxop temp
VGDX0049 = 0x0000 \ # CF spare 5
VGDX0050 = 0x0000 \ # CF spare 6
VGDX0051 = 0x0000 \ # CF spare 7
VGDX0052 = 0x0000 \ # CF spare 8
VGDX0053 = 0x3C00 \ # CF timeout sci pkt 1
VGDX0054 = 0x0000 \ # CF timeout sci pkt 2
VGDX0055 = 0x0A00 \ # CF time HK pkt 1
VGDX0056 = 0x0000 \ # CF time HK pkt 2
VGDX0057 = 0x2800 \ # CF arm TC timeout 1
VGDX0058 = 0x0000 \ # CF arm TC timeout 2
VGDX0059 = 0x0000 \ # CF patches status 1
VGDX0060 = 0x0000 \ # CF patches status 2
VGDX0061 = 0x0000 \ # CF patches status 3
VGDX0062 = 0x0000 \ # CF patches status 4
VGDX0063 = 0x2800 \ # CF max GDS events sec
VGDX0064 = 0x2800 \ # CF max IS events sec
VGDX0065 = 0x0000 \ # CF PAD 1
VGDX0066 = 0x0000 \ # CF PAD 2
VGDX0067 = 0x0000 \ # CF PAD 3
VGDX0068 = 0x0000 \ # CF PAD 4
VGDX0069 = 0x6204 ) # CF CRC
```

```
#####
# Description: "3. | GD Patch CF in NVRAM"
#####
```

```
000_00:04:00    GIADA    SAFE    AGDS006A ( \ # GD Patch CF in NVRAM
              VGDX0001 = 0x0000 \ # CF spare 1
              VGDX0002 = 0x1E00 \ # CF CovFra heat on time
              VGDX0003 = 0x0000 \ # CF CovMot heat on time
              VGDX0004 = 0xA105 \ # CF FB safety temp
              VGDX0005 = 0xA105 \ # CF FB test temp
              VGDX0006 = 0x1E00 \ # CF FB test timeout 1
              VGDX0007 = 0x0000 \ # CF FB test timeout 2
              VGDX0008 = 0x6406 \ # CF FB working temp
              VGDX0009 = 0x5802 \ # CF FB op timeout 1
              VGDX0010 = 0x0000 \ # CF FB op timeout 2
              VGDX0011 = 0x3200 \ # CF velocity
```



```

VGDX0012 = 0xAB00 \ # CF steps to open
VGDX0013 = 0xAB00 \ # CF steps to close
VGDX0014 = 0x7800 \ # CF opening timeout 1
VGDX0015 = 0x0000 \ # CF opening timeout 2
VGDX0016 = 0x7800 \ # CF closing timeout 1
VGDX0017 = 0x0000 \ # CF closing timeout 2
VGDX0018 = 0x03AF \ # CF GDS status
VGDX0019 = 0x1A23 \ # CF GDS thresholds
VGDX0020 = 0xAFF5 \ # CF laser max temp
VGDX0021 = 0xDDFD \ # CF laser min temp
VGDX0022 = 0x0000 \ # CF spare 2
VGDX0023 = 0x0000 \ # CF spare 3
VGDX0024 = 0x100E \ # CF GDS time bet cal 1
VGDX0025 = 0x0000 \ # CF GDS time bet cal 2
VGDX0026 = 0x1F9F \ # CF IS status
VGDX0027 = 0xB81A \ # CF IS maxop temp
VGDX0028 = 0x0000 \ # CF spare 4
VGDX0029 = 0x3500 \ # CF IS hyst temp
VGDX0030 = 0x0500 \ # CF IS thresholds 1
VGDX0031 = 0x0F05 \ # CF IS thresholds 2
VGDX0032 = 0x1405 \ # CF IS thresholds 3
VGDX0033 = 0x100E \ # CF IS time bet cal 1
VGDX0034 = 0x0000 \ # CF IS time bet cal 2
VGDX0035 = 0x04F8 \ # CF IS cal config
VGDX0036 = 0x009F \ # CF MBS status
VGDX0037 = 0x4B0A \ # CF MBS max temp
VGDX0038 = 0x00F8 \ # CF MBS temp checking
VGDX0039 = 0x2C01 \ # CF MBS time interval 1
VGDX0040 = 0x0000 \ # CF MBS time interval 2
VGDX0041 = 0xA40A \ # CF MBS max heat temp
VGDX0042 = 0x6801 \ # CF heating timeout 1
VGDX0043 = 0x0000 \ # CF heating timeout 2
VGDX0044 = 0x100E \ # CF MBS time bet cal 1
VGDX0045 = 0x0000 \ # CF MBS time bet cal 2
VGDX0046 = 0x6D1A \ # CF IS maxnonop temp
VGDX0047 = 0xCE1D \ # CF IS min temp
VGDX0048 = 0xC719 \ # CF ME maxop temp
VGDX0049 = 0x0000 \ # CF spare 5
VGDX0050 = 0x0000 \ # CF spare 6
VGDX0051 = 0x0000 \ # CF spare 7
VGDX0052 = 0x0000 \ # CF spare 8
VGDX0053 = 0x3C00 \ # CF timeout sci pkt 1
VGDX0054 = 0x0000 \ # CF timeout sci pkt 2
VGDX0055 = 0x0A00 \ # CF time HK pkt 1
VGDX0056 = 0x0000 \ # CF time HK pkt 2
VGDX0057 = 0x2800 \ # CF arm TC timeout 1
VGDX0058 = 0x0000 \ # CF arm TC timeout 2
VGDX0059 = 0x0000 \ # CF patches status 1
VGDX0060 = 0x0000 \ # CF patches status 2
VGDX0061 = 0x0000 \ # CF patches status 3
VGDX0062 = 0x0000 \ # CF patches status 4
VGDX0063 = 0x2800 \ # CF max GDS events sec
VGDX0064 = 0x2800 \ # CF max IS events sec
VGDX0065 = 0x0000 \ # CF PAD 1
VGDX0066 = 0x0000 \ # CF PAD 2
VGDX0067 = 0x0000 \ # CF PAD 3
VGDX0068 = 0x0000 \ # CF PAD 4
VGDX0069 = 0x6204 ) # CF CRC

```

+000_00:05:00 GIADA SAFE AGDS003A # Patch SW v.2.3

+000_00:10:00 GIADA SAFE AGDS035A # Go to Cover Mode

+000_00:11:00 GIADA COVER AGDF090A # Open cover

Description: "5 minutes waiting, then 1 min. for OBCP execution and 4 min. for a margin of heating time"

+000_00:21:00 GIADA COVER AGDS065A # Go to Safe mode

```
#####
# Description: "4. | GIADA switch to Flux mode"
#####
```

000_00:22:00 GIADA SAFE AGDS616A # Go to Flux mode

000_00:22:30 GIADA FLUX AGDS210A # Enable Scientific packets

000_00:23:00 GIADA FLUX AGDS501A (\
VGDS037A = On [ENG]) # Set MBS On

000_00:24:00 GIADA FLUX AGDS536A (\
REPEAT = 6 \ # Calibrate MBS
SEPARATION = 00:05:00)

```
#####
# Description: "5. | Shut down"
#####
```

+000_00:50:00 GIADA FLUX AGDF060A # Go to Safe mode & Power-off

```
#####--END-----#####
```

11.5 TIMELINE FOR MAIN INTERFACE (GD_INT)

\$Log: OIOR_PIHRSO_D_0014_GD_INT___00049.ROS,v \$

#

Version 1.0 2009/07/03 12:00:00 GIADA

Set up GIADA for PC10 Interference test with ROSINA.

#

```
#####
```

Filename: OIOR_PIHRSO_D_0014_GD_INT___00049.ROS

Type: Input Timeline file

#

Description: Set up GIADA for PC10 Interference test with ROSINA

#

#

Author: PP, AA

#

GIADA

#

Date: 03 July 2009

#

#

Proposed by GIADA team

#

(c) ESA/Estec

#

```
#-----#
#=====#

# EPS required, but RSOC will use CVS version
Version: 00001

Ref_date: 21-Sep-2009
Start_time: 000_00:00:00
End_time: 000_01:00:00

#=====#
# Description: "1. | Switch on and interference test - Main I/F"
#=====#

+000_00:00:00      GIADA  OFF AGDS001A ( \
                                VGD0001B = "nom. branch" [ENG] \ #
GIADA on Main IF
                                VGD0001A = "YES" [ENG]) # Context
exists

+000_00:03:00      GIADA SAFE  AGDS003A # Patch SW v.2.3

+000_00:08:00      GIADA SAFE  AGDS035A # Go to Cover Mode

+000_00:09:00      GIADA COVER AGDF090A # Open cover

Description: "5 minutes waiting, then 1 min. for OBCP execution and 4 min. for a
margin of heating time"

+000_00:19:00      GIADA COVER AGDS065A # Go to Safe mode

+000_00:20:00      GIADA SAFE  AGDS110A # Go to Normal mode

Description: "GIADA operating in Normal mode"

+000_00:22:00      GIADA NORMAL      AGDS120A ( \
                                VGDS0010 = 0xF8 \
                                VGDS0011 = 0x04 \ # Calibrate IS, GDS, MBS

                                REPEAT = 6 \
                                SEPARATION = 00:05:00 )

#=====#
#
# Description: "2. | Shut down"
#=====#

+000_00:52:00      GIADA NORMAL      AGDF060A # Go to Safe mode & Power-off

#=====END=====#
```