SEPT
COMPREHENSIVE PERFORMANCE TEST (CPT)

PREPARED BY:

L. DUVET, ESTEC

R. MUELLER-MELLIN, UNIVERSITY OF KIEL

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1 Objectives

The purpose of this document is to describe the SEPT Comprehensive Performance Tests which will be performed during environmental tests. This set of tests will give the possibility to fully assess the correct behavior of the SEPT instrument before and after each environmental test, and also during thermal vacuum test.

The CPT will be carried out by using dedicated scripts run on the SEPT EGSE.

2 Applicable Documents

AD1 SEPT - FPGA Data Sheet – Second Flight Release Document SEPT-001-005 version 1.0 – October 2003, Gaisler Research.

AD2 Particle Detector Front End, datasheet, IMEC, Aug. 1st, 2003.

3 Reference documents

RD1 SEPT Controller User manual, H. Smit, May 2003.
RD2 SEPT Operation Control and Data Processing Requirements, version 3.0, May 2003
RD3 SEPT Control script documentation, version 1.0, I. Mas-Munoz, L. Duvet, January 2004.
RD4 SEPT Level 1 Data format, STEREO-ETKI-003.1, 23rd May 2003.

4 Acronyms and Abbreviations

CPT Comprehensive Performance Test
EGSE Electrical Ground Support Equipment
LUT Look Up Table
PDFE Particle Detector Front End
SEP Solar Energetic Particles suite of instruments
SEPT Solar Electron and Proton Telescope
SSD Solid state detector
TBD To be defined
TBC To be confirmed
TBA To be added

5 Overview

5.1 Introduction

SEPT consists of two identical telescopes (SEPT-E and SEPT-NS) per STEREO spacecraft dedicated to the measuremenst of electrons (from 20 keV to 400keV) and ions (60 keV to 7 MeV). A telescope comprises a sensor and an electronics unit which analyses the signals of four solid-state detectors (SSD) and four corresponding guard rings. The four detectors are integrated in two oppositely directed telescopes with viewing cones either the ecliptic plane (E) or in north-south direction (NS). Each detector is connected to a PDFE (Particle Detector Front End) ASIC. The solid state detector signals are pulse-height analysed in 256 channels (linear binning) and compressed to 32 channels (quasi-logarithmic binning) for transmission to SEP-Central. Each detector main and guard ring counts can be monitored in sequence by a so-called single counter. Additional 18 housekeeping signals are sampled and transferred to SEP-Central as well as general status bits. A dedicated inflight test generator permits generation of test pulses to verify proper functioning of the onboard electronics. The low-level operation of SEPT electronics is controlled by a specific FPGA. The high level operation of SEPT is controlled by the SEP-Central processor by means of commands sent on the serial interface. The same serial interface is used to transfer all scientific, calibration and housekeeping data from SEPT to SEP-Central.

The block diagram in Figure 1 shows details for one of the two SEPT telescopes.

5.2 Block Diagram

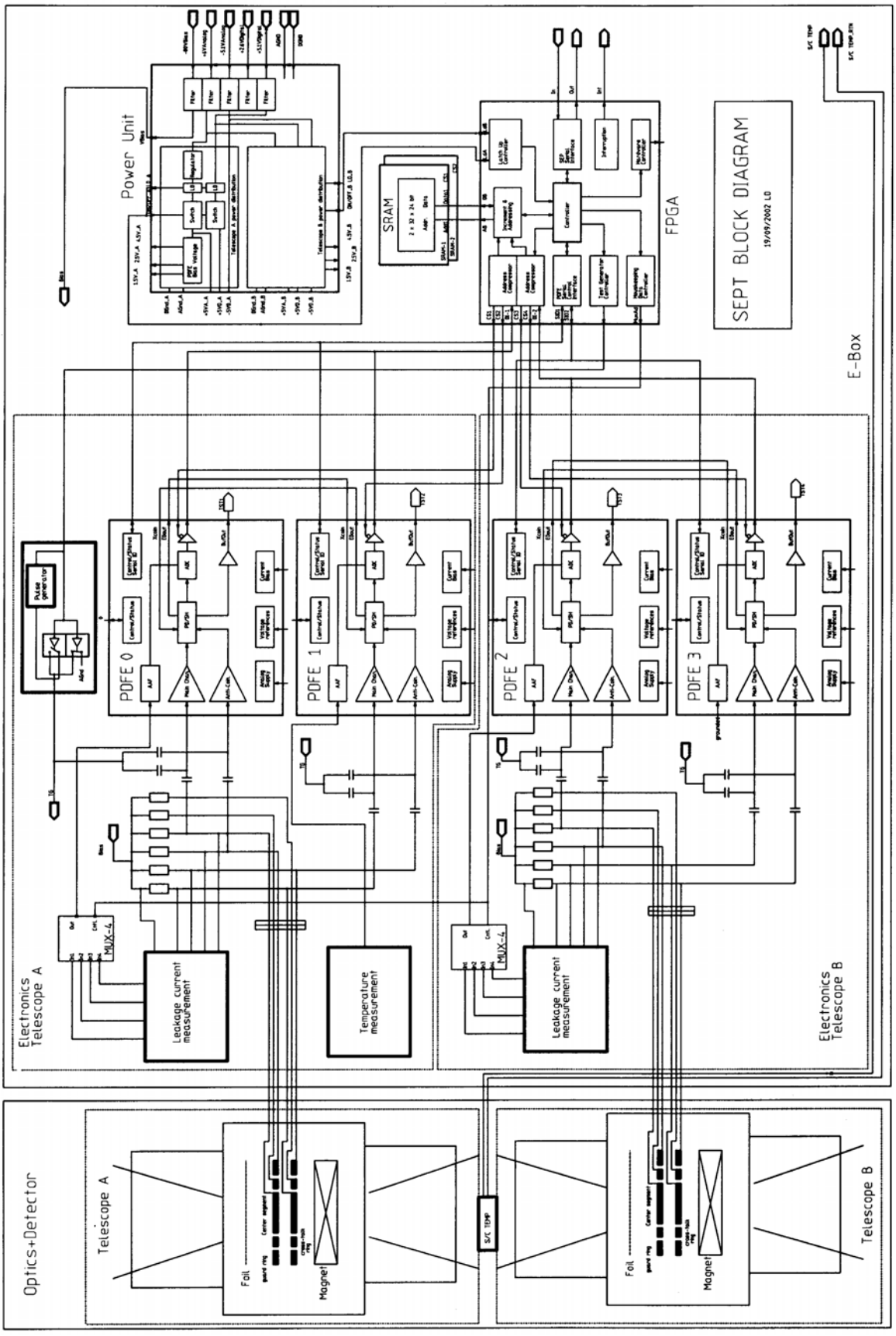

Figure 1 SEPT block diagram

6 CPT description

The CPT consists of a series of test modules commanding each SEPT unit into the following modes:

- Commissioning mode
- Test generator mode
- Nominal observation mode

The different modes are described in detail in RD2. Two units can be tested in parallel with the SEPT EGSE. The current consumption on each power line is logged with 200 ms time resolution by the EGSE.

6.1 Commissioning mode

The purpose of this mode is to extensively test the electronics. The commissioning mode as referred to here is a simplified version of the commissioning mode detailed in RD2.

- Com1: With bias voltage applied
  - Com1a: Check commands
  - Com1c: Check RAM Write and Read
  - Com1d: Check mode consumption: the instrument is placed in different configurations corresponding to different current consumptions.

An example is given in Section 7.2.1.

6.2 Test generator mode

In this mode the inflight test generator produces charge pulses with a frequency of 17.579 kHz that can be routed to the different PDFE inputs (main or guard). Four different charge amplitudes (equally spread over the full range) can be generated. Each telescope has its own test generator circuitry but both circuitries are operated in parallel. This mode can only be used whenever both sides of a telescope are operational.

The module is divided into two parts:

- part Test1: the configuration of the PDFEs and FPGA is similar to the nominal mode (anti-coincidence with pair center segment and own guard and pair guard)
- part Test2: the configuration of the PDFEs and FPGA is similar to the calibration mode (coincidence with pair center segment)

For each part the relevant stimuli patterns are tested and a specific channel is selected for the single counter. The detailed stimuli pattern can be found in RD3. A one second accumulation time is used.

An example is given in Section 7.2.2.

6.3 Nominal mode

This mode consists of a quiet run in nominal observation where four buffers per SEPT unit are read in during an accumulation period of 60 seconds, the PDFE working in full anti-coincidence mode. Housekeeping values are also read at the end of each accumulation period as well as one single counter value. After a series of 8 cycles, all the single counters will have been read.

The accumulation duration is based on the internal timer of the FPGA. Logarithmic binning of the detector signals is not applied, but 256 bins per spectrum will be issued for highest resolution.

7 CPT GSE scripts

7.1 Description

The scripts are written in vbscript and are directly usable with the SEPT EGSE. See RD3.

7.1.1 Commissioning mode script

The commissioning scripts consist of 3 scripts : comm1a, comm1c and comm1d. The total duration of the test is ~ 8 minutes. See RD3 for details.

7.1.2 Test generator mode script

The test generator is run once. The duration of the test is ~ 5 minutes. See RD3 for details.

7.1.3 Nominal mode script

The scripts will be run:

- during 8 minutes with a ^{60}Co source for the aliveness test between each axis during vibration (see Figure 2 for typical result)
- during 8 minutes without source for background measurements
- during TBD minutes without source for cosmic ray muon acquisition at cold and hot soaks during the thermal vacuum test for temperature calibration purposes. To achieve sufficient counting statistics, data must be added for hot soak and cold soak periods separately.

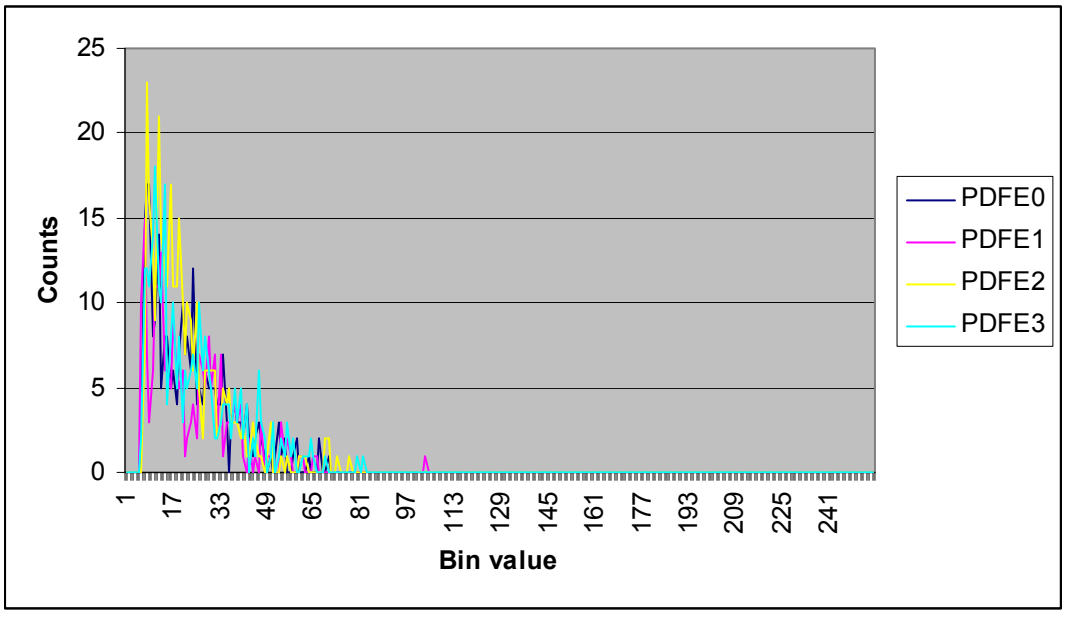

Figure 2: ^{60}Co source spectrum obtained during an 8 minute accumulation period. The source is placed on top of the instrument.

7.2 Output

The different scripts generate log files with the following naming convention:

SEPT_script_name_Unit _identifier_date

where unit_identifier is an 8-bit serial number unique to each unit and contained electronically in each FPGA. The files contain the list of commands issued by the EGSE, and the echo sent by the FPGA is also logged for verification.

7.2.1 Commissioning mode script

7.2.1.1 Comm1 a

File name: ex: SEPT_COMM_1A_10111100_2003.11.11_12.47
Content:

SEPT-E spare
Date of Test Comm1a: 11/11/2003 12:47:15

Commissioning Mode 1a: Command Check
****

Result	Command	Input	Output	
fine	RstFPGA		00010001	00010001
fine	RstComm		00010010	00010010
fine	GetId		00010100	10111100 00010100
fine	ClearIrq	01110000	00000000 00000000 01110000	NO Interrupt Register latched.
fine	ConfFilter(00,dis)	00110000	00110000	
fine	ConfFilter(01,dis)	00110100	00110100	
fine	ConfFilter(10,dis)	00111000	00111000	
fine	ConfFilter(11,dis)	00111100	00111100	
fine	ConfFilter(00,ind)	00110001	00110001	
fine	ConfFilter(01,ind)	00110101	00110101	
fine	ConfFilter(10,ind)	00111001	00111001	
fine	ConfFilter(11,ind)	00111101	00111101	
fine	ConfFilter(00,Obs)	00110010	00110010	
fine	ConfFilter(01,Obs)	00110110	00110110	
fine	ConfFilter(10,Obs)	00111010	00111010	
fine	ConfFilter(11,Obs)	00111110	00111110	
fine	ConfFilter(00,cal)	00110011	00110011	
fine	ConfFilter(01,cal)	00110111	00110111	
fine	ConfFilter(10,cal)	00111011	00111011	
fine	ConfFilter(11,cal)	00111111	00111111	
fine	ClearIrq	01110000	00000000 00000000 01110000	NO Interrupt Register latched.
fine	SetTimer	11010000	11010000	
fine	ReadTimer	11010100	00000000 00000000 00000000 11010100	
fine	ReadDate	11011000	00000000 00000000 00000000 00000000 00000000 00000000 11011000	
fine	ConfCal		11100000	11100000
fine	ClearIrq	01110000	00000000 00000000 01110000	NO Interrupt Register latched.
fine	ConfLatch	11111111	11111111	

fine	ClearIrq	01110000	00000000 00000000 01110000	
				NO Interrupt Register latched.

7.2.1.2 Comm1 c

Filename: ex: SEPT_COMM_1C_10111100_2003.11.11_12.53
Content:

SEPT-E spare
Date of Test Comm1c: 11/11/2003 12:53:23

Commissioning Mode 1c: Check RAM Write and Read.
****

Result	Command	Input	Output
fine	RstFPGA	00010001	00010001

32 BIN COUNTER.
****

fine	ConfCntr	10100011	10100011
fine	InitCntr(zeros)pdfe00	10101000	10101000
fine	InitCntr(zeros)pdfe01	10101001	10101001
fine	InitCntr(zeros)pdfe10	10101010	10101010
fine	InitCntr(zeros)pdfe11	10101011	10101011
fine	Readbin(32) of pdfe00	10110000	10110000
fine	counter values 32bin set to zero PDFE00.		
fine	Readbin(32) of pdfe01	10110001	10110001
fine	counter values 32bin set to zero PDFE01.		
fine	Readbin(32) of pdfe10	10110010	10110010
fine	counter values 32bin set to zero PDFE10.		
fine	Readbin(32) of pdfe11	10110011	10110011
fine	counter values 32bin set to zero PDFE11.		
fine	InitCntr(cal)pdfe00	10101100	10101100
fine	InitCntr(cal)pdfe01	10101101	10101101
fine	InitCntr(cal)pdfe10	10101110	10101110
fine	InitCntr(cal)pdfe11	10101111	10101111
fine	Readbin(32) of pdfe00	10110000	10110000
fine	counter values 32bin set to Cal PDFE00.		
fine	Readbin(32) of pdfe01	10110001	10110001
fine	counter values 32bin set to Cal PDFE01.		
fine	Readbin(32) of pdfe10	10110010	10110010
fine	counter values 32bin set to Cal PDFE10.		
fine	Readbin(32) of pdfe11	10110011	10110011
fine	counter values 32bin set to Cal PDFE11.		

256 BIN COUNTER.
****

fine	ConfCntr	10100000	10100000
fine	InitCntr(zeros)pdfe00	10101000	10101000
fine	InitCntr(zeros)pdfe01	10101001	10101001
fine	InitCntr(zeros)pdfe10	10101010	10101010
fine	InitCntr(zeros)pdfe11	10101011	10101011
fine	Readbin(256) of pdfe00	10110100	10110100
fine	counter values 256bin set to zero PDFE00.		

```
-------------------------------------------------------------------------------
fine    Readbin(256) of pdfe01                  10110101    10110101
fine    counter values 256bin set to zero PDFE01.
-------------------------------------------------------------------------------
fine    Readbin(256) of pdfe10                  10110110    10110110
fine    counter values 256bin set to zero PDFE10.
-------------------------------------------------------------------------------
fine    Readbin(256) of pdfe11                  10110111    10110111
fine    counter values 256bin set to zero PDFE11.
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
fine        InitCntr(cal)pdfe00     10101100    10101100
-------------------------------------------------------------------------------
fine        InitCntr(cal)pdfe01     10101101    10101101
-------------------------------------------------------------------------------
fine        InitCntr(cal)pdfe10     10101110    10101110
-------------------------------------------------------------------------------
fine        InitCntr(cal)pdfe11     10101111    10101111
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
fine    Readbin(256) of pdfe00                  10110100    10110100
fine    counter values 256bin set to Cal PDFE00.
-------------------------------------------------------------------------------
fine    Readbin(256) of pdfe01                  10110101    10110101
fine    counter values 256bin set to Cal PDFE01.
-------------------------------------------------------------------------------
fine    Readbin(256) of pdfe10                  10110110    10110110
fine    counter values 256bin set to Cal PDFE10.
-------------------------------------------------------------------------------
fine    Readbin(256) of pdfe11                  10110111    10110111
fine    counter values 256bin set to Cal PDFE11.
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
fine        GetId           00010100    10111100 00010100
```

A file containing also the values of each counter in the different cases is also created (ex: SEPT_COMM_1C_BV_10111100_2003.11.11_12.53).

7.2.1.3 comm1d

Filename: ex: SEPT_COMM_1DA_10111100_2003.10.22_17.31
Content: Log of the commands + individual current consumptions at each step

Filename: ex: SEPT_COMM_1DB_10111100_2003.10.22_17.31
Content: Log of the commands + individual current consumptions at each step

Filename: ex: SEPT_COMM_1DC_10111100_2003.10.22_17.31
Content: Log of the commands + individual current consumptions at each step

Filename: ex: SEPT_COMM_1DD_10111100_2003.10.22_17.31
Content: Log of the commands + individual current consumptions at each step

7.2.2 Test generator mode script

7.2.2.1 T1

Filename: SEPT_T1_TEST_10111010_2004_54.dat
Content:

```
Test Mode T1: SEPT Control Data
Instrument Version:                 SEPT-E S/C B
ESA/ESTEC
File Created: Fri  10:01:02
Bin Counter 256.
Main event detection level PDFE0-SEPT: 30
Main event detection level PDFE1-SEPT: 30
```

Main event detection level PDFE2-SEPT: 30
Main event detection level PDFE3-SEPT: 30
Coincidence event detection level PDFE0-SEPT: 30
Coincidence event detection level PDFE1-SEPT: 30
Coincidence event detection level PDFE2-SEPT: 30
Coincidence event detection level PDFE3-SEPT: 30
....
Description of the format of the Command Check records:
Field 1: Timestamp- Day of the year, floating point, with 5 digits to the right of the decimal point.
Field 2: day of the year (%2i)
Field 3: hour (%2i) 0 to 24
Field 4: minute (%2i)
Field 5: seconds (%2i)
Field 6: Fine / Not Fine
Field 7: Command Name

Command Check.

2004.17486534861 54 10 1 2	fine	cRstComm
2004.17486534861 54 10 1 2	fine	cRstFPGA
2004.17486534861 54 10 1 2	fine	cConfLatch
2004.17486534861 54 10 1 2	fine	cClearIrq
2004.17486534861 54 10 1 2	fine	cPwrPDFE
2004.17486534861 54 10 1 2	fine	cDrvPDFE
2004.17486534861 54 10 1 2	fine	cEnPDFE
2004.17486534861 54 10 1 2	fine	cEnPDFE
2004.17486534861 54 10 1 2	fine	cCtrlPDFE
2004.17486534861 54 10 1 2	fine	cClearIrq
2004.17486534861 54 10 1 2	fine	cConfCntr
2004.17486534861 54 10 1 2	fine	cConfPDFE
2004.17486534861 54 10 1 2	fine	cConfFiltr
2004.17486534861 54 10 1 2	fine	cInitCntr
2004.17486538024 54 10 1 3	fine	cConfPDFE
2004.17486538024 54 10 1 3	fine	cConfFiltr
2004.17486538024 54 10 1 3	fine	cInitCntr
2004.17486538024 54 10 1 3	fine	cConfPDFE
2004.17486538024 54 10 1 3	fine	cConfFiltr
2004.17486538024 54 10 1 3	fine	cInitCntr
2004.17486538024 54 10 1 3	fine	cConfPDFE
2004.17486538024 54 10 1 3	fine	cConfFiltr
2004.17486538024 54 10 1 3	fine	cInitCntr
2004.17486538024 54 10 1 3	fine	cSetTimer
2004.17486538024 54 10 1 3	fine	cGetSingle
2004.17486538024 54 10 1 3	fine	cConfCal
2004.17486538024 54 10 1 3	fine	cClearIrq
2004.17486538024 54 10 1 3	fine	cStartRun
2004.17486541186 54 10 1 4	fine	cClearIrq
2004.17486544348 54 10 1 5	fine	cRead256
2004.17486547511 54 10 1 6	fine	cRead256
2004.17486547511 54 10 1 6	fine	cRead256
2004.17486550673 54 10 1 7	fine	cRead256
2004.17486550673 54 10 1 7	fine	cConfPDFE
2004.17486550673 54 10 1 7	fine	cGetHK
2004.17486550673 54 10 1 7	fine	cConfPDFE
2004.17486550673 54 10 1 7	fine	cConfPDFE
2004.17486550673 54 10 1 7	fine	cGetHK
2004.17486553835 54 10 1 8	fine	cConfPDFE
2004.17486553835 54 10 1 8	fine	cConfPDFE
2004.17486553835 54 10 1 8	fine	cGetHK
2004.17486553835 54 10 1 8	fine	cConfPDFE
2004.17486553835 54 10 1 8	fine	cConfPDFE
2004.17486553835 54 10 1 8	fine	cGetHK
2004.17486553835 54 10 1 8	fine	cConfPDFE
2004.17486553835 54 10 1 8	fine	cGetSingle
2004.17486553835 54 10 1 8	fine	cConfCal
2004.17486553835 54 10 1 8	fine	cClearIrq
2004.17486553835 54 10 1 8	fine	cStartRun
2004.17486556998 54 10 1 9	fine	cClearIrq
2004.1748656016 54 10 1 10	fine	cRead256
2004.17486563322 54 10 1 11	fine	cRead256
2004.17486563322 54 10 1 11	fine	cRead256
2004.17486566485 54 10 1 12	fine	cRead256
2004.17486566485 54 10 1 12	fine	cConfPDFE
2004.17486566485 54 10 1 12	fine	cGetHK
2004.17486566485 54 10 1 12	fine	cConfPDFE
2004.17486566485 54 10 1 12	fine	cConfPDFE
2004.17486566485 54 10 1 12	fine	cGetHK
2004.17486566485 54 10 1 12	fine	cConfPDFE
2004.17486566485 54 10 1 12	fine	cConfPDFE
2004.17486569647 54 10 1 13	fine	cGetHK
2004.17486569647 54 10 1 13	fine	cConfPDFE
2004.17486569647 54 10 1 13	fine	cConfPDFE
2004.17486569647 54 10 1 13	fine	cGetHK
2004.17486569647 54 10 1 13	fine	cConfPDFE
2004.17486569647 54 10 1 13	fine	cGetSingle
2004.17486569647 54 10 1 13	fine	cConfCal
2004.17486569647 54 10 1 13	fine	cClearIrq
2004.17486569647 54 10 1 13	fine	cStartRun
2004.17486572809 54 10 1 14	fine	cClearIrq
2004.17486575971 54 10 1 15	fine	cRead256
2004.17486579134 54 10 1 16	fine	cRead256
2004.17486579134 54 10 1 16	fine	cRead256

2004.17486582296 54 10 1 17	fine	cRead256
2004.17486582296 54 10 1 17	fine	cConfPDFE
2004.17486582296 54 10 1 17	fine	cGetHK
2004.17486582296 54 10 1 17	fine	cConfPDFE
2004.17486582296 54 10 1 17	fine	cConfPDFE
2004.17486582296 54 10 1 17	fine	cGetHK
2004.17486582296 54 10 1 17	fine	cConfPDFE
2004.17486582296 54 10 1 17	fine	cConfPDFE
2004.17486582296 54 10 1 17	fine	cGetHK
2004.17486582296 54 10 1 17	fine	cConfPDFE
2004.17486582296 54 10 1 17	fine	cConfPDFE
2004.17486582296 54 10 1 17	fine	cGetHK
2004.17486582296 54 10 1 17	fine	cConfPDFE
2004.17486585458 54 10 1 18	fine	cGetSingle
2004.17486585458 54 10 1 18	fine	cConfCal
2004.17486585458 54 10 1 18	fine	cClearIrq
2004.17486585458 54 10 1 18	fine	cStartRun
2004.17486588621 54 10 1 19	fine	cClearIrq
2004.17486591783 54 10 1 20	fine	cRead256
2004.17486591783 54 10 1 20	fine	cRead256
2004.17486594945 54 10 1 21	fine	cRead256
2004.17486598108 54 10 1 22	fine	cRead256
2004.17486598108 54 10 1 22	fine	cConfPDFE
2004.17486598108 54 10 1 22	fine	cGetHK
2004.17486598108 54 10 1 22	fine	cConfPDFE
2004.17486598108 54 10 1 22	fine	cConfPDFE
2004.17486598108 54 10 1 22	fine	cGetHK
2004.17486598108 54 10 1 22	fine	cConfPDFE
2004.17486598108 54 10 1 22	fine	cConfPDFE
2004.17486598108 54 10 1 22	fine	cGetHK
2004.17486598108 54 10 1 22	fine	cConfPDFE
2004.17486598108 54 10 1 22	fine	cConfPDFE
2004.17486598108 54 10 1 22	fine	cGetHK
2004.17486598108 54 10 1 22	fine	cConfPDFE
2004.17486598108 54 10 1 22	fine	cGetSingle
2004.1748660127 54 10 1 23	fine	cConfCal
2004.1748660127 54 10 1 23	fine	cClearIrq
2004.1748660127 54 10 1 23	fine	cStartRun
2004.17486604432 54 10 1 24	fine	cClearIrq
2004.17486607595 54 10 1 25	fine	cRead256
2004.17486610757 54 10 1 26	fine	cRead256
2004.17486610757 54 10 1 26	fine	cRead256
2004.17486613919 54 10 1 27	fine	cRead256
2004.17486613919 54 10 1 27	fine	cConfPDFE
2004.17486613919 54 10 1 27	fine	cGetHK
2004.17486613919 54 10 1 27	fine	cConfPDFE
2004.17486613919 54 10 1 27	fine	cConfPDFE
2004.17486613919 54 10 1 27	fine	cGetHK
2004.17486613919 54 10 1 27	fine	cConfPDFE
2004.17486613919 54 10 1 27	fine	cConfPDFE
2004.17486617082 54 10 1 28	fine	cGetHK
2004.17486617082 54 10 1 28	fine	cConfPDFE
2004.17486617082 54 10 1 28	fine	cConfPDFE
2004.17486617082 54 10 1 28	fine	cGetHK
2004.17486617082 54 10 1 28	fine	cConfPDFE
2004.17486617082 54 10 1 28	fine	cGetSingle
2004.17486617082 54 10 1 28	fine	cConfCal
2004.17486617082 54 10 1 28	fine	cClearIrq
2004.17486617082 54 10 1 28	fine	cStartRun
2004.17486620244 54 10 1 29	fine	cClearIrq
2004.17486623406 54 10 1 30	fine	cRead256
2004.17486626569 54 10 1 31	fine	cRead256
2004.17486626569 54 10 1 31	fine	cRead256
2004.17486629731 54 10 1 32	fine	cRead256
2004.17486629731 54 10 1 32	fine	cConfPDFE
2004.17486629731 54 10 1 32	fine	cGetHK
2004.17486629731 54 10 1 32	fine	cConfPDFE
2004.17486629731 54 10 1 32	fine	cConfPDFE
2004.17486629731 54 10 1 32	fine	cGetHK
2004.17486629731 54 10 1 32	fine	cConfPDFE
2004.17486629731 54 10 1 32	fine	cConfPDFE
2004.17486629731 54 10 1 32	fine	cGetHK
2004.17486629731 54 10 1 32	fine	cConfPDFE
2004.17486629731 54 10 1 32	fine	cConfPDFE
2004.17486629731 54 10 1 32	fine	cGetHK
2004.17486629731 54 10 1 32	fine	cConfPDFE
2004.17486629731 54 10 1 32	fine	cGetSingle
2004.17486632893 54 10 1 33	fine	cConfCal
2004.17486632893 54 10 1 33	fine	cClearIrq
2004.17486632893 54 10 1 33	fine	cStartRun
2004.17486636055 54 10 1 34	fine	cClearIrq
2004.17486639218 54 10 1 35	fine	cRead256
2004.17486639218 54 10 1 35	fine	cRead256
2004.1748664238 54 10 1 36	fine	cRead256
2004.17486645542 54 10 1 37	fine	cRead256
2004.17486645542 54 10 1 37	fine	cConfPDFE
2004.17486645542 54 10 1 37	fine	cGetHK
2004.17486645542 54 10 1 37	fine	cConfPDFE
2004.17486645542 54 10 1 37	fine	cConfPDFE
2004.17486645542 54 10 1 37	fine	cGetHK
2004.17486645542 54 10 1 37	fine	cConfPDFE
2004.17486645542 54 10 1 37	fine	cConfPDFE
2004.17486645542 54 10 1 37	fine	cGetHK

2004.17486645542 54 10 1 37	fine	cConfPDFE
2004.17486645542 54 10 1 37	fine	cConfPDFE
2004.17486645542 54 10 1 37	fine	cGetHK
2004.17486645542 54 10 1 37	fine	cConfPDFE
2004.17486645542 54 10 1 37	fine	cGetSingle
2004.17486645542 54 10 1 37	fine	cConfCal
2004.17486645542 54 10 1 37	fine	cClearIrq
2004.17486645542 54 10 1 37	fine	cStartRun
2004.17486651867 54 10 1 39	fine	cClearIrq
2004.17486651867 54 10 1 39	fine	cRead256
2004.17486655029 54 10 1 40	fine	cRead256
2004.17486658192 54 10 1 41	fine	cRead256
2004.17486661354 54 10 1 42	fine	cRead256
2004.17486661354 54 10 1 42	fine	cConfPDFE
2004.17486661354 54 10 1 42	fine	cGetHK
2004.17486661354 54 10 1 42	fine	cConfPDFE
2004.17486661354 54 10 1 42	fine	cConfPDFE
2004.17486661354 54 10 1 42	fine	cGetHK
2004.17486661354 54 10 1 42	fine	cConfPDFE
2004.17486661354 54 10 1 42	fine	cConfPDFE
2004.17486661354 54 10 1 42	fine	cGetHK
2004.17486661354 54 10 1 42	fine	cConfPDFE
2004.17486661354 54 10 1 42	fine	cConfPDFE
2004.17486661354 54 10 1 42	fine	cGetHK
2004.17486661354 54 10 1 42	fine	cConfPDFE
2004.17486661354 54 10 1 42	fine	cGetSingle
2004.17486664516 54 10 1 43	fine	cConfCal
2004.17486664516 54 10 1 43	fine	cClearIrq
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2004.17486971261 54 10 3 20	fine	cStartRun
2004.17486974423 54 10 3 21	fine	cClearIrq
2004.17486977586 54 10 3 22	fine	cRead256
2004.17486980748 54 10 3 23	fine	cRead256
2004.17486980748 54 10 3 23	fine	cRead256
2004.1748698391 54 10 3 24	fine	cRead256
2004.1748698391 54 10 3 24	fine	cConfPDFE
2004.1748698391 54 10 3 24	fine	cGetHK
2004.1748698391 54 10 3 24	fine	cConfPDFE
2004.1748698391 54 10 3 24	fine	cConfPDFE
2004.1748698391 54 10 3 24	fine	cGetHK
2004.1748698391 54 10 3 24	fine	cConfPDFE
2004.1748698391 54 10 3 24	fine	cConfPDFE
2004.1748698391 54 10 3 24	fine	cGetHK
2004.1748698391 54 10 3 24	fine	cConfPDFE
2004.17486987072 54 10 3 25	fine	cConfPDFE
2004.17486987072 54 10 3 25	fine	cGetHK

2004.17486987072 54 10 3 25	fine	cConfPDFE
2004.17486987072 54 10 3 25	fine	cGetSingle
2004.17486987072 54 10 3 25	fine	cConfCal
2004.17486987072 54 10 3 25	fine	cClearIrq
2004.17486987072 54 10 3 25	fine	cStartRun
2004.17486990235 54 10 3 26	fine	cClearIrq
2004.17486993397 54 10 3 27	fine	cRead256
2004.17486993397 54 10 3 27	fine	cRead256
2004.17486996559 54 10 3 28	fine	cRead256
2004.17486999722 54 10 3 29	fine	cRead256
2004.17486999722 54 10 3 29	fine	cConfPDFE
2004.17486999722 54 10 3 29	fine	cGetHK
2004.17486999722 54 10 3 29	fine	cConfPDFE
2004.17486999722 54 10 3 29	fine	cConfPDFE
2004.17486999722 54 10 3 29	fine	cGetHK
2004.17486999722 54 10 3 29	fine	cConfPDFE
2004.17486999722 54 10 3 29	fine	cConfPDFE
2004.17486999722 54 10 3 29	fine	cGetHK
2004.17486999722 54 10 3 29	fine	cConfPDFE
2004.17486999722 54 10 3 29	fine	cConfPDFE
2004.17486999722 54 10 3 29	fine	cGetHK
2004.17486999722 54 10 3 29	fine	cConfPDFE
2004.17486999722 54 10 3 29	fine	cGetSingle
2004.17486999722 54 10 3 29	fine	cConfCal
2004.17486999722 54 10 3 29	fine	cClearIrq
2004.17486999722 54 10 3 29	fine	cStartRun
2004.17487006046 54 10 3 31	fine	cClearIrq
2004.17487006046 54 10 3 31	fine	cRead256
2004.17487009209 54 10 3 32	fine	cRead256
2004.17487012371 54 10 3 33	fine	cRead256
2004.17487015533 54 10 3 34	fine	cRead256
2004.17487015533 54 10 3 34	fine	cConfPDFE
2004.17487015533 54 10 3 34	fine	cGetHK
2004.17487015533 54 10 3 34	fine	cConfPDFE
2004.17487015533 54 10 3 34	fine	cConfPDFE
2004.17487015533 54 10 3 34	fine	cGetHK
2004.17487015533 54 10 3 34	fine	cConfPDFE
2004.17487015533 54 10 3 34	fine	cConfPDFE
2004.17487015533 54 10 3 34	fine	cGetHK
2004.17487015533 54 10 3 34	fine	cConfPDFE
2004.17487015533 54 10 3 34	fine	cConfPDFE
2004.17487015533 54 10 3 34	fine	cGetHK
2004.17487015533 54 10 3 34	fine	cConfPDFE
2004.17487015533 54 10 3 34	fine	cGetSingle
2004.17487015533 54 10 3 34	fine	cConfCal
2004.17487015533 54 10 3 34	fine	cClearIrq
2004.17487015533 54 10 3 34	fine	cStartRun
2004.17487021858 54 10 3 36	fine	cClearIrq
2004.17487021858 54 10 3 36	fine	cRead256
2004.1748702502 54 10 3 37	fine	cRead256
2004.17487028183 54 10 3 38	fine	cRead256
2004.17487028183 54 10 3 38	fine	cRead256
2004.17487028183 54 10 3 38	fine	cConfPDFE
2004.17487028183 54 10 3 38	fine	cGetHK
2004.17487028183 54 10 3 38	fine	cConfPDFE
2004.17487031345 54 10 3 39	fine	cConfPDFE
2004.17487031345 54 10 3 39	fine	cGetHK
2004.17487031345 54 10 3 39	fine	cConfPDFE
2004.17487031345 54 10 3 39	fine	cConfPDFE
2004.17487031345 54 10 3 39	fine	cGetHK
2004.17487031345 54 10 3 39	fine	cConfPDFE
2004.17487031345 54 10 3 39	fine	cConfPDFE
2004.17487031345 54 10 3 39	fine	cGetHK
2004.17487031345 54 10 3 39	fine	cConfPDFE
2004.17487031345 54 10 3 39	fine	cGetSingle
2004.17487031345 54 10 3 39	fine	cClearIrq
2004.17487031345 54 10 3 39	fine	cEnPDFE
2004.17487034507 54 10 3 40	fine	cDrvPDFE
2004.17487034507 54 10 3 40	fine	cPwrPDFE
2004.17487034507 54 10 3 40	fine	cClearIrq

Command Test passed!!! OK.

Description of the format of the Check Counter Test:
Title and number of Test
Table for every amplitude: 4 different PDFE counters
- Total Counts, Counter Index of max Counts, and Max Counts-
and GetSingle Counter.

After every test, errors encountered.
Last line are the total number of errors encountered in total.

Test Mode T1: 1. CS Even Alone:

A=0	Total Counts MaxCounts	Index of Max	
PDFE=0	17579	10966	252
PDFE=1	0	0	NA
PDFE=2	17579	11354	254
PDFE=3	0	0	NA
GetSingle CS 0:	17579		

A=1	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	10928	183
PDFE=1	0	0	NA
PDFE=2	17579	10860	183
PDFE=3	0	0	NA
GetSingle CS 0:	17579		

A=2	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	10470	115
PDFE=1	0	0	NA
PDFE=2	17579	12009	116
PDFE=3	0	0	NA
GetSingle CS 0:	17579		

A=3	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	8758	45
PDFE=1	0	0	NA
PDFE=2	17579	10134	45
PDFE=3	0	0	NA
GetSingle CS 0:	17579		

Test Mode T1: 2. CS Odd Alone:

A=0	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	17579	11623	247
PDFE=2	0	0	NA
PDFE=3	17579	9776	247
GetSingle CS 1:	17579		

A=1	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	17579	10957	180
PDFE=2	0	0	NA
PDFE=3	17579	12579	178
GetSingle CS 1:	17579		

A=2	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	17579	11091	112
PDFE=2	0	0	NA
PDFE=3	17579	13401	113
GetSingle CS 1:	17579		

A=3	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	17579	12111	43
PDFE=2	0	0	NA
PDFE=3	17579	12217	43
GetSingle CS 1:	17579		

Test Mode T1: 3a. CS Even & CS Odd:

A=0	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle CS 2:	17521		

A=1	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle CS 2:	17579		

A=2	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle CS 2:	17579		

A=3	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle CS 2:	17588		

Test Mode T1: 3b. CS Even & CS Odd:

A=0	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA

PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle CS 3:	17579		

A=1	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle CS 3:	17579		

A=2	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle CS 3:	17579		

A=3	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle CS 3:	17579		

Test Mode T1: 4. CS Even & GR Even:

A=0	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 0:	17579		

A=1	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 0:	17579		

A=2	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 0:	17579		

A=3	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 0:	17579		

Test Mode T1: 5. CS Odd & GR Odd:

A=0	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 1:	17579		

A=1	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 1:	17579		

A=2	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 1:	17579		

A=3	Total Counts	MaxCounts	Index of Max
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 1:	17579		

Test Mode T1: 6. CS Even & GR Odd:

A=0	Total Counts	MaxCounts	Index of Max	
PDFE=0	0		0	NA
PDFE=1	0		0	NA
PDFE=2	0		0	NA
PDFE=3	0		0	NA
GetSingle GR 3:	17577			

A=1	Total Counts	MaxCounts	Index of Max	
PDFE=0	0		0	NA
PDFE=1	0		0	NA
PDFE=2	0		0	NA
PDFE=3	0		0	NA
GetSingle GR 3:	17367			

A=2	Total Counts	MaxCounts	Index of Max	
PDFE=0	0		0	NA
PDFE=1	0		0	NA
PDFE=2	0		0	NA
PDFE=3	0		0	NA
GetSingle GR 3:	17562			

A=3	Total Counts	MaxCounts	Index of Max	
PDFE=0	0		0	NA
PDFE=1	0		0	NA
PDFE=2	0		0	NA
PDFE=3	0		0	NA
GetSingle GR 3:	17470			

Test Mode T1: 7. CS Odd & GR Even:

A=0	Total Counts	MaxCounts	Index of Max	
PDFE=0	0		0	NA
PDFE=1	0		0	NA
PDFE=2	0		0	NA
PDFE=3	0		0	NA
GetSingle GR 2:	17579			

A=1	Total Counts	MaxCounts	Index of Max	
PDFE=0	0		0	NA
PDFE=1	0		0	NA
PDFE=2	0		0	NA
PDFE=3	0		0	NA
GetSingle GR 2:	17579			

A=2	Total Counts	MaxCounts	Index of Max	
PDFE=0	0		0	NA
PDFE=1	0		0	NA
PDFE=2	0		0	NA
PDFE=3	0		0	NA
GetSingle GR 2:	17579			

A=3	Total Counts	MaxCounts	Index of Max	
PDFE=0	0		0	NA
PDFE=1	0		0	NA
PDFE=2	0		0	NA
PDFE=3	0		0	NA
GetSingle GR 2:	17579			

Counter Test passed!!! OK.

Two additional files are created:

- Filename: SEPT_T1_L1_10111100_2003_327
  - Content: data acquired during the whole test and written to L1 data format (see RD4).
- Filename: SEPT_T1_HK_10111100_2003_327
  - Content: HK acquired during the whole test.

7.2.2.2 T2

Filename: SEPT_T2_TEST_10111100_2003_327
Content:

Test Mode T2: SEPT Control Data
Instrument Version: SEPT-E S/C B
ESA/ESTEC

File Created: Fri 10:03:40
Bin Counter 256.
Main event detection level PDFE0-SEPT: 30
Main event detection level PDFE1-SEPT: 30
Main event detection level PDFE2-SEPT: 30
Main event detection level PDFE3-SEPT: 30
Coincidence event detection level PDFE0-SEPT: 30
Coincidence event detection level PDFE1-SEPT: 30
Coincidence event detection level PDFE2-SEPT: 30
Coincidence event detection level PDFE3-SEPT: 30
....
Description of the format of the Command Check records:
Field 1: Timestamp- Day of the year, floating point, with 5 digits to the right of the decimal point.
Field 2: day of the year (%2i)
Field 3: hour (%2i) 0 to 24
Field 4: minute (%2i)
Field 5: seconds (%2i)
Field 6: Fine / Not Fine
Field 7: Command Name

Command Check.

2004.17487034507 54 10 3 40	fine	cRstComm
2004.17487034507 54 10 3 40	fine	cRstFPGA
2004.17487034507 54 10 3 40	fine	cConfLatch
2004.17487034507 54 10 3 40	fine	cClearIrq
2004.17487034507 54 10 3 40	fine	cPwrPDFE
2004.17487034507 54 10 3 40	fine	cDrvPDFE
2004.17487034507 54 10 3 40	fine	cEnPDFE
2004.17487034507 54 10 3 40	fine	cEnPDFE
2004.17487034507 54 10 3 40	fine	cCtrlPDFE
2004.17487034507 54 10 3 40	fine	cClearIrq
2004.17487034507 54 10 3 40	fine	cConfCntr
2004.17487034507 54 10 3 40	fine	cConfPDFE
2004.17487034507 54 10 3 40	fine	cConfFiltr
2004.17487034507 54 10 3 40	fine	cInitCntr
2004.17487034507 54 10 3 40	fine	cConfPDFE
2004.17487034507 54 10 3 40	fine	cConfFiltr
2004.17487034507 54 10 3 40	fine	cInitCntr
2004.17487034507 54 10 3 40	fine	cConfPDFE
2004.17487034507 54 10 3 40	fine	cConfFiltr
2004.17487034507 54 10 3 40	fine	cInitCntr
2004.17487034507 54 10 3 40	fine	cConfPDFE
2004.17487034507 54 10 3 40	fine	cConfFiltr
2004.17487034507 54 10 3 40	fine	cInitCntr
2004.17487034507 54 10 3 40	fine	cSetTimer
2004.17487034507 54 10 3 40	fine	cGetSingle
2004.17487034507 54 10 3 40	fine	cConfCal
2004.17487034507 54 10 3 40	fine	cClearIrq
2004.17487034507 54 10 3 40	fine	cStartRun
2004.17487040832 54 10 3 42	fine	cClearIrq
2004.17487043994 54 10 3 43	fine	cRead256
2004.17487043994 54 10 3 43	fine	cRead256
2004.17487047156 54 10 3 44	fine	cRead256
2004.17487050319 54 10 3 45	fine	cRead256
2004.17487050319 54 10 3 45	fine	cConfPDFE
2004.17487050319 54 10 3 45	fine	cGetHK
2004.17487050319 54 10 3 45	fine	cConfPDFE
2004.17487050319 54 10 3 45	fine	cConfPDFE
2004.17487050319 54 10 3 45	fine	cGetHK
2004.17487050319 54 10 3 45	fine	cConfPDFE
2004.17487050319 54 10 3 45	fine	cConfPDFE
2004.17487050319 54 10 3 45	fine	cGetHK
2004.17487050319 54 10 3 45	fine	cConfPDFE
2004.17487050319 54 10 3 45	fine	cConfPDFE
2004.17487050319 54 10 3 45	fine	cGetHK
2004.17487050319 54 10 3 45	fine	cConfPDFE
2004.17487050319 54 10 3 45	fine	cGetSingle
2004.17487050319 54 10 3 45	fine	cConfCal
2004.17487050319 54 10 3 45	fine	cClearIrq
2004.17487050319 54 10 3 45	fine	cStartRun
2004.17487056643 54 10 3 47	fine	cClearIrq
2004.17487059806 54 10 3 48	fine	cRead256
2004.17487059806 54 10 3 48	fine	cRead256
2004.17487062968 54 10 3 49	fine	cRead256
2004.1748706613 54 10 3 50	fine	cRead256
2004.1748706613 54 10 3 50	fine	cConfPDFE
2004.1748706613 54 10 3 50	fine	cGetHK
2004.1748706613 54 10 3 50	fine	cConfPDFE
2004.1748706613 54 10 3 50	fine	cConfPDFE
2004.1748706613 54 10 3 50	fine	cGetHK
2004.1748706613 54 10 3 50	fine	cConfPDFE
2004.1748706613 54 10 3 50	fine	cConfPDFE
2004.1748706613 54 10 3 50	fine	cGetHK
2004.1748706613 54 10 3 50	fine	cConfPDFE
2004.1748706613 54 10 3 50	fine	cConfPDFE
2004.1748706613 54 10 3 50	fine	cGetHK
2004.1748706613 54 10 3 50	fine	cConfPDFE
2004.1748706613 54 10 3 50	fine	cGetSingle
2004.1748706613 54 10 3 50	fine	cConfCal
2004.1748706613 54 10 3 50	fine	cClearIrq
2004.1748706613 54 10 3 50	fine	cStartRun

2004.17487072455 54 10 3 52	fine	cClearIrq
2004.17487075617 54 10 3 53	fine	cRead256
2004.17487075617 54 10 3 53	fine	cRead256
2004.1748707878 54 10 3 54	fine	cRead256
2004.17487081942 54 10 3 55	fine	cRead256
2004.17487081942 54 10 3 55	fine	cConfPDFE
2004.17487081942 54 10 3 55	fine	cGetHK
2004.17487081942 54 10 3 55	fine	cConfPDFE
2004.17487081942 54 10 3 55	fine	cConfPDFE
2004.17487081942 54 10 3 55	fine	cGetHK
2004.17487081942 54 10 3 55	fine	cConfPDFE
2004.17487081942 54 10 3 55	fine	cConfPDFE
2004.17487081942 54 10 3 55	fine	cGetHK
2004.17487081942 54 10 3 55	fine	cConfPDFE
2004.17487081942 54 10 3 55	fine	cConfPDFE
2004.17487081942 54 10 3 55	fine	cGetHK
2004.17487081942 54 10 3 55	fine	cConfPDFE
2004.17487081942 54 10 3 55	fine	cGetSingle
2004.17487081942 54 10 3 55	fine	cConfCal
2004.17487081942 54 10 3 55	fine	cClearIrq
2004.17487081942 54 10 3 55	fine	cStartRun
2004.17487088267 54 10 3 57	fine	cClearIrq
2004.17487091429 54 10 3 58	fine	cRead256
2004.17487091429 54 10 3 58	fine	cRead256
2004.17487094591 54 10 3 59	fine	cRead256
2004.17487097753 54 10 4 0	fine	cRead256
2004.17487097753 54 10 4 0	fine	cConfPDFE
2004.17487097753 54 10 4 0	fine	cGetHK
2004.17487097753 54 10 4 0	fine	cConfPDFE
2004.17487097753 54 10 4 0	fine	cConfPDFE
2004.17487097753 54 10 4 0	fine	cGetHK
2004.17487097753 54 10 4 0	fine	cConfPDFE
2004.17487097753 54 10 4 0	fine	cConfPDFE
2004.17487097753 54 10 4 0	fine	cGetHK
2004.17487097753 54 10 4 0	fine	cConfPDFE
2004.17487097753 54 10 4 0	fine	cConfPDFE
2004.17487097753 54 10 4 0	fine	cGetHK
2004.17487097753 54 10 4 0	fine	cConfPDFE
2004.17487097753 54 10 4 0	fine	cGetSingle
2004.17487100916 54 10 4 1	fine	cConfCal
2004.17487100916 54 10 4 1	fine	cClearIrq
2004.17487100916 54 10 4 1	fine	cStartRun
2004.17487104078 54 10 4 2	fine	cClearIrq
2004.1748710724 54 10 4 3	fine	cRead256
2004.17487110403 54 10 4 4	fine	cRead256
2004.17487113565 54 10 4 5	fine	cRead256
2004.17487113565 54 10 4 5	fine	cRead256
2004.17487116727 54 10 4 6	fine	cConfPDFE
2004.17487116727 54 10 4 6	fine	cGetHK
2004.17487116727 54 10 4 6	fine	cConfPDFE
2004.17487116727 54 10 4 6	fine	cConfPDFE
2004.17487116727 54 10 4 6	fine	cGetHK
2004.17487116727 54 10 4 6	fine	cConfPDFE
2004.17487116727 54 10 4 6	fine	cConfPDFE
2004.17487116727 54 10 4 6	fine	cGetHK
2004.17487116727 54 10 4 6	fine	cConfPDFE
2004.17487116727 54 10 4 6	fine	cConfPDFE
2004.17487116727 54 10 4 6	fine	cGetHK
2004.17487116727 54 10 4 6	fine	cConfPDFE
2004.17487116727 54 10 4 6	fine	cGetSingle
2004.17487116727 54 10 4 6	fine	cConfCal
2004.17487116727 54 10 4 6	fine	cClearIrq
2004.17487116727 54 10 4 6	fine	cStartRun
2004.1748711989 54 10 4 7	fine	cClearIrq
2004.17487123052 54 10 4 8	fine	cRead256
2004.17487126214 54 10 4 9	fine	cRead256
2004.17487129377 54 10 4 10	fine	cRead256
2004.17487129377 54 10 4 10	fine	cRead256
2004.17487132539 54 10 4 11	fine	cConfPDFE
2004.17487132539 54 10 4 11	fine	cGetHK
2004.17487132539 54 10 4 11	fine	cConfPDFE
2004.17487132539 54 10 4 11	fine	cConfPDFE
2004.17487132539 54 10 4 11	fine	cGetHK
2004.17487132539 54 10 4 11	fine	cConfPDFE
2004.17487132539 54 10 4 11	fine	cConfPDFE
2004.17487132539 54 10 4 11	fine	cGetHK
2004.17487132539 54 10 4 11	fine	cConfPDFE
2004.17487132539 54 10 4 11	fine	cConfPDFE
2004.17487132539 54 10 4 11	fine	cGetHK
2004.17487132539 54 10 4 11	fine	cConfPDFE
2004.17487132539 54 10 4 11	fine	cGetSingle
2004.17487132539 54 10 4 11	fine	cConfCal
2004.17487132539 54 10 4 11	fine	cClearIrq
2004.17487132539 54 10 4 11	fine	cStartRun
2004.17487135701 54 10 4 12	fine	cClearIrq
2004.17487138864 54 10 4 13	fine	cRead256
2004.17487142026 54 10 4 14	fine	cRead256
2004.17487145188 54 10 4 15	fine	cRead256
2004.17487145188 54 10 4 15	fine	cRead256
2004.17487145188 54 10 4 15	fine	cConfPDFE
2004.17487148351 54 10 4 16	fine	cGetHK
2004.17487148351 54 10 4 16	fine	cConfPDFE
2004.17487148351 54 10 4 16	fine	cConfPDFE

2004.17487148351 54 10 4 16	fine	cGetHK
2004.17487148351 54 10 4 16	fine	cConfPDFE
2004.17487148351 54 10 4 16	fine	cConfPDFE
2004.17487148351 54 10 4 16	fine	cGetHK
2004.17487148351 54 10 4 16	fine	cConfPDFE
2004.17487148351 54 10 4 16	fine	cConfPDFE
2004.17487148351 54 10 4 16	fine	cGetHK
2004.17487148351 54 10 4 16	fine	cConfPDFE
2004.17487148351 54 10 4 16	fine	cGetSingle
2004.17487148351 54 10 4 16	fine	cConfCal
2004.17487148351 54 10 4 16	fine	cClearIrq
2004.17487148351 54 10 4 16	fine	cStartRun
2004.17487151513 54 10 4 17	fine	cClearIrq
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2004.1748750253 54 10 6 8	fine	cGetHK
2004.1748750253 54 10 6 8	fine	cConfPDFE
2004.1748750253 54 10 6 8	fine	cConfPDFE
2004.1748750253 54 10 6 8	fine	cGetHK
2004.1748750253 54 10 6 8	fine	cConfPDFE
2004.1748750253 54 10 6 8	fine	cConfPDFE
2004.1748750253 54 10 6 8	fine	cGetHK
2004.1748750253 54 10 6 8	fine	cConfPDFE
2004.1748750253 54 10 6 8	fine	cConfPDFE
2004.1748750253 54 10 6 8	fine	cGetHK
2004.1748750253 54 10 6 8	fine	cConfPDFE
2004.1748750253 54 10 6 8	fine	cGetSingle
2004.17487505692 54 10 6 9	fine	cConfCal
2004.17487505692 54 10 6 9	fine	cClearIrq
2004.17487505692 54 10 6 9	fine	cStartRun
2004.17487512017 54 10 6 11	fine	cClearIrq
2004.17487512017 54 10 6 11	fine	cRead256
2004.17487515179 54 10 6 12	fine	cRead256
2004.17487518341 54 10 6 13	fine	cRead256
2004.17487521504 54 10 6 14	fine	cRead256
2004.17487521504 54 10 6 14	fine	cConfPDFE
2004.17487521504 54 10 6 14	fine	cGetHK
2004.17487521504 54 10 6 14	fine	cConfPDFE
2004.17487521504 54 10 6 14	fine	cConfPDFE
2004.17487521504 54 10 6 14	fine	cGetHK
2004.17487521504 54 10 6 14	fine	cConfPDFE
2004.17487521504 54 10 6 14	fine	cConfPDFE

2004.17487521504 54 10 6 14	fine	cGetHK
2004.17487521504 54 10 6 14	fine	cConfPDFE
2004.17487521504 54 10 6 14	fine	cConfPDFE
2004.17487521504 54 10 6 14	fine	cGetHK
2004.17487521504 54 10 6 14	fine	cConfPDFE
2004.17487521504 54 10 6 14	fine	cGetSingle
2004.17487521504 54 10 6 14	fine	cConfCal
2004.17487521504 54 10 6 14	fine	cClearIrq
2004.17487521504 54 10 6 14	fine	cStartRun
2004.17487527828 54 10 6 16	fine	cClearIrq
2004.17487527828 54 10 6 16	fine	cRead256
2004.17487530991 54 10 6 17	fine	cRead256
2004.17487534153 54 10 6 18	fine	cRead256
2004.17487537315 54 10 6 19	fine	cRead256
2004.17487537315 54 10 6 19	fine	cConfPDFE
2004.17487537315 54 10 6 19	fine	cGetHK
2004.17487537315 54 10 6 19	fine	cConfPDFE
2004.17487537315 54 10 6 19	fine	cConfPDFE
2004.17487537315 54 10 6 19	fine	cGetHK
2004.17487537315 54 10 6 19	fine	cConfPDFE
2004.17487537315 54 10 6 19	fine	cConfPDFE
2004.17487537315 54 10 6 19	fine	cGetHK
2004.17487537315 54 10 6 19	fine	cConfPDFE
2004.17487537315 54 10 6 19	fine	cConfPDFE
2004.17487537315 54 10 6 19	fine	cGetHK
2004.17487537315 54 10 6 19	fine	cConfPDFE
2004.17487537315 54 10 6 19	fine	cGetSingle
2004.17487537315 54 10 6 19	fine	cConfCal
2004.17487537315 54 10 6 19	fine	cClearIrq
2004.17487537315 54 10 6 19	fine	cStartRun
2004.1748754364 54 10 6 21	fine	cClearIrq
2004.1748754364 54 10 6 21	fine	cRead256
2004.17487546802 54 10 6 22	fine	cRead256
2004.17487549965 54 10 6 23	fine	cRead256
2004.17487549965 54 10 6 23	fine	cRead256
2004.17487553127 54 10 6 24	fine	cConfPDFE
2004.17487553127 54 10 6 24	fine	cGetHK
2004.17487553127 54 10 6 24	fine	cConfPDFE
2004.17487553127 54 10 6 24	fine	cConfPDFE
2004.17487553127 54 10 6 24	fine	cGetHK
2004.17487553127 54 10 6 24	fine	cConfPDFE
2004.17487553127 54 10 6 24	fine	cConfPDFE
2004.17487553127 54 10 6 24	fine	cGetHK
2004.17487553127 54 10 6 24	fine	cConfPDFE
2004.17487553127 54 10 6 24	fine	cConfPDFE
2004.17487553127 54 10 6 24	fine	cGetHK
2004.17487553127 54 10 6 24	fine	cConfPDFE
2004.17487553127 54 10 6 24	fine	cGetSingle
2004.17487553127 54 10 6 24	fine	cConfCal
2004.17487553127 54 10 6 24	fine	cClearIrq
2004.17487553127 54 10 6 24	fine	cStartRun
2004.17487559452 54 10 6 26	fine	cClearIrq
2004.17487559452 54 10 6 26	fine	cRead256
2004.17487562614 54 10 6 27	fine	cRead256
2004.17487565776 54 10 6 28	fine	cRead256
2004.17487565776 54 10 6 28	fine	cRead256
2004.17487565776 54 10 6 28	fine	cConfPDFE
2004.17487568938 54 10 6 29	fine	cGetHK
2004.17487568938 54 10 6 29	fine	cConfPDFE
2004.17487568938 54 10 6 29	fine	cConfPDFE
2004.17487568938 54 10 6 29	fine	cGetHK
2004.17487568938 54 10 6 29	fine	cConfPDFE
2004.17487568938 54 10 6 29	fine	cConfPDFE
2004.17487568938 54 10 6 29	fine	cGetHK
2004.17487568938 54 10 6 29	fine	cConfPDFE
2004.17487568938 54 10 6 29	fine	cConfPDFE
2004.17487568938 54 10 6 29	fine	cGetHK
2004.17487568938 54 10 6 29	fine	cConfPDFE
2004.17487568938 54 10 6 29	fine	cGetSingle
2004.17487572101 54 10 6 30	fine	cClearIrq
2004.17487572101 54 10 6 30	fine	cEnPDFE
2004.17487572101 54 10 6 30	fine	cDrvPDFE
2004.17487572101 54 10 6 30	fine	cPwrPDFE
2004.17487572101 54 10 6 30	fine	cClearIrq

Command Test passed!!! OK.

Description of the format of the Check Counter Test:
Title and number of Test
Table for every amplitude: 4 different PDFE counters
- Total Counts, Counter Index of max Counts, and Max Counts-
and GetSingle Counter.

After every test, errors encountered.
Last line are the total number of errors encountered in total.

Test Mode T2: CS Even & CS Odd:

A=0	Total Counts MaxCounts	Index of Max	
PDFE=0	17579	10658	255

PDFE=1	17579	10394	249
PDFE=2	17579	17578	255
PDFE=3	17579	9822	249
GetSingle CS 3:	17579		

A=1	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	9347	186
PDFE=1	17579	12275	181
PDFE=2	17579	10066	185
PDFE=3	17579	9003	180
GetSingle CS 3:	17579		

A=2	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	8404	118
PDFE=1	17579	9386	114
PDFE=2	17579	8768	118
PDFE=3	17579	9943	115
GetSingle CS 3:	17579		

A=3	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	10266	47
PDFE=1	17579	11986	44
PDFE=2	17579	10805	46
PDFE=3	17579	13348	45
GetSingle CS 3:	17579		

Test Mode T2: CS Even & CS Odd :

A=0	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	11107	255
PDFE=1	17579	10448	249
PDFE=2	17579	17578	255
PDFE=3	17579	9826	249
GetSingle CS2:	17489		

A=1	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	9491	186
PDFE=1	17579	12336	181
PDFE=2	17579	9698	185
PDFE=3	17579	8585	181
GetSingle CS2:	17578		

A=2	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	8396	118
PDFE=1	17579	9622	114
PDFE=2	17579	8962	118
PDFE=3	17579	10158	115
GetSingle CS2:	17579		

A=3	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	10316	47
PDFE=1	17579	12191	44
PDFE=2	17579	10452	46
PDFE=3	17579	13444	45
GetSingle CS2:	17592		

Test Mode T2: CS Even & CS Odd:

A=0	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	11484	255
PDFE=1	17579	10076	249
PDFE=2	17579	17578	255
PDFE=3	17579	9680	249
GetSingle CS 1:	17579		

A=1	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	9318	186
PDFE=1	17579	11804	181
PDFE=2	17579	9244	185
PDFE=3	17579	9031	181
GetSingle CS 1:	17579		

A=2	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	8481	118
PDFE=1	17579	10108	114
PDFE=2	17579	9178	118
PDFE=3	17579	10402	115
GetSingle CS 1:	17579		

A=3	Total Counts	MaxCounts	Index of Max
PDFE=0	17579	10095	47
PDFE=1	17579	12087	44
PDFE=2	17579	10252	46
PDFE=3	17579	13154	45
GetSingle CS 1:	17579		

Test Mode T2: CS Even & CS Odd:

A=0	Total Counts MaxCounts	Index of Max	
PDFE=0	17579	11691	255
PDFE=1	17579	9580	249
PDFE=2	17579	17578	255
PDFE=3	17579	9449	249
GetSingle CS 0:	17574		

A=1	Total Counts MaxCounts	Index of Max	
PDFE=0	17579	9429	186
PDFE=1	17579	11802	181
PDFE=2	17579	8847	185
PDFE=3	17579	9594	181
GetSingle CS 0:	17551		

A=2	Total Counts MaxCounts	Index of Max	
PDFE=0	17579	8676	118
PDFE=1	17579	10356	114
PDFE=2	17579	9271	118
PDFE=3	17579	10466	115
GetSingle CS 0:	17576		

A=3	Total Counts MaxCounts	Index of Max	
PDFE=0	17579	10106	47
PDFE=1	17579	12018	44
PDFE=2	17579	10042	46
PDFE=3	17579	13092	45
GetSingle CS 0:	17555		

Test Mode T2: GR Odd:

A=0	Total Counts MaxCounts	Index of Max	
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 3:	17579		

A=1	Total Counts MaxCounts	Index of Max	
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 3:	17469		

A=2	Total Counts MaxCounts	Index of Max	
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 3:	17579		

A=3	Total Counts MaxCounts	Index of Max	
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR 3:	17577		

Test Mode T2: GR Odd:

A=0	Total Counts MaxCounts	Index of Max	
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR1:	17579		

A=1	Total Counts MaxCounts	Index of Max	
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR1:	17579		

A=2	Total Counts MaxCounts	Index of Max	
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR1:	17579		

A=3	Total Counts MaxCounts	Index of Max	
PDFE=0	0	0	NA
PDFE=1	0	0	NA
PDFE=2	0	0	NA
PDFE=3	0	0	NA
GetSingle GR1:	17579		

```
-------------------------------------------------------------------------------------------
                        Test Mode T2: GR Even:
-------------------------------------------------------------------------------------------
A=0                     Total Counts MaxCounts  Index of Max
PDFE=0                  0                       0                       NA
PDFE=1                  0                       0                       NA
PDFE=2                  0                       0                       NA
PDFE=3                  0                       0                       NA
GetSingle GR 2:         17579

A=1                     Total Counts MaxCounts  Index of Max
PDFE=0                  0                       0                       NA
PDFE=1                  0                       0                       NA
PDFE=2                  0                       0                       NA
PDFE=3                  0                       0                       NA
GetSingle GR 2:         17579

A=2                     Total Counts MaxCounts  Index of Max
PDFE=0                  0                       0                       NA
PDFE=1                  0                       0                       NA
PDFE=2                  0                       0                       NA
PDFE=3                  0                       0                       NA
GetSingle GR 2:         17579

A=3                     Total Counts MaxCounts  Index of Max
PDFE=0                  0                       0                       NA
PDFE=1                  0                       0                       NA
PDFE=2                  0                       0                       NA
PDFE=3                  0                       0                       NA
GetSingle GR 2:         17579


-------------------------------------------------------------------------------------------
                        Test Mode T2: GR Even:
-------------------------------------------------------------------------------------------
A=0                     Total Counts MaxCounts  Index of Max
PDFE=0                  0                       0                       NA
PDFE=1                  0                       0                       NA
PDFE=2                  0                       0                       NA
PDFE=3                  0                       0                       NA
GetSingle GR 0:         17579

A=1                     Total Counts MaxCounts  Index of Max
PDFE=0                  0                       0                       NA
PDFE=1                  0                       0                       NA
PDFE=2                  0                       0                       NA
PDFE=3                  0                       0                       NA
GetSingle GR 0:         17579

A=2                     Total Counts MaxCounts  Index of Max
PDFE=0                  0                       0                       NA
PDFE=1                  0                       0                       NA
PDFE=2                  0                       0                       NA
PDFE=3                  0                       0                       NA
GetSingle GR 0:         17579

A=3                     Total Counts MaxCounts  Index of Max
PDFE=0                  0                       0                       NA
PDFE=1                  0                       0                       NA
PDFE=2                  0                       0                       NA
PDFE=3                  0                       0                       NA
GetSingle GR 0:         17579

-------------------------------------------------------------------------------------------

Counter Test passed!!! OK.
```

Two additional files are created:

- Filename: SEPT_T2_L1_10111100_2003_327
    - Content: data acquired during the whole test and written to L1 data format (see RD4).
- Filename: SEPT_T2_TEST_10111100_2003_327

Content: HK acquired during the whole test.

7.2.3 Nominal mode script

The data are stored in different files

- L1 format file
- HK file