PAS calibration mode analysis V.2.0 (22nd Jan 2020)

The single real working calibration mode we have obtained during the SVT rehearsal with PAS EQM, DPU EM-2 at MSSL. This test has been done on 4th of June 2019. This text have been never executed with PFM onboard teh S/C with the updated DPU software.

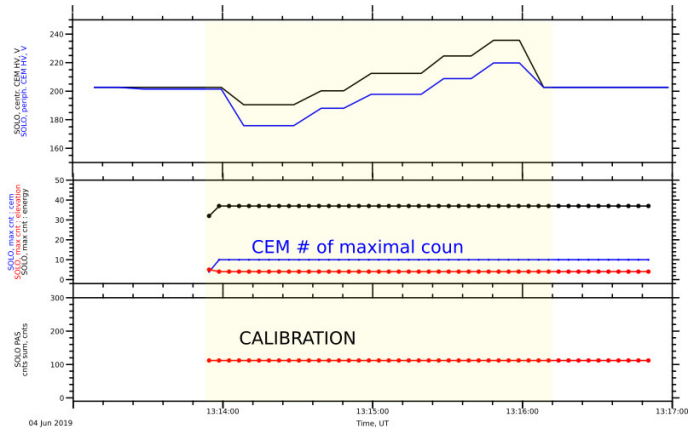
The corresponding command is as follows:

ZIA58850	SWA_TC_PAS_CALIBRATION_MODE	203	128	10	0x0005C2	Min HV CEM	1800 V
					0x000066	Step HV CEM	125 V
					0x00075B	Max HV CEM	2300 V
					0x000FFB	Mask 0	CEM #2
					0x000FF7	Mask 1	CEM #3
					0x000FEF	Mask 2	CEM #4
					0x000FDF	Mask 3	CEM #5
					0x000FBF	Mask 4	CEM #6
					0x0006B7	Normal CEM HV	
					0x000000	Normal Mask	

That my imagination about CEM mask was (0 is ON, 1 is OFF):

```
          10 9 8 7 6 5 4 3 2 1 0 CEM #
1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 FFFB CEM 2
1 1 1 1 1 1 1 1 1 1 1 0 1 1 1 FFF7 CEM 3
1 1 1 1 1 1 1 1 1 1 0 1 1 1 1 FFEF CEM 4
1 1 1 1 1 1 1 1 1 0 1 1 1 1 1 FFDF CEM 5
1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 FFBF CEM 6
```

The general results are below, the cout was really at CEM #10. It means we cannot see the count in the "Calibration: packet.



The Calibration packed decoding is as follows (part)

```
1 | SCI.Parse_PAS_CAL | Final, start, step, acquisition = 1883 1474 102 25
1 | SCI.Parse_PAS_CAL | STEP = 0 ============== Start + step = 1474 E El CEM Count
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:13:56.500000000 Mask #1 0 0 0 0
1 | SCI.Parse_PAS_CAL | Record 00000 : Acquisition 1/25
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:14:00.500000000 Mask #2 0 0 0 0
1 | SCI.Parse_PAS_CAL | Record 00001 : Acquisition 2/25
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:14:04.500000000 Mask #3 0 0 0 0
1 | SCI.Parse_PAS_CAL | Record 00002 : Acquisition 3/25
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:14:08.500000000 Mask #4 0 0 0 0
1 | SCI.Parse_PAS_CAL | Record 00003 : Acquisition 4/25
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:14:12.500000000 Mask #5 37 4 10 112
1 | SCI.Parse_PAS_CAL | Record 00004 : Acquisition 5/25
1 | SCI.Parse_PAS_CAL | STEP = 1 ============== Start + step = 1576 E El CEM Count
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:14:20.500000000 Mask #1 0 0 0 0
1 | SCI.Parse_PAS_CAL | Record 00005 : Acquisition 6/25
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:14:24.500000000 Mask #2 0 0 0 0
1 | SCI.Parse_PAS_CAL | Record 00006 : Acquisition 7/25
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:14:28.500000000 Mask #3 0 0 0 0
1 | SCI.Parse_PAS_CAL | Record 00007 : Acquisition 8/25
```

```
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:14:32.500000000 Mask #4 0 0 0 0
1 | SCI.Parse_PAS_CAL | Record 00008 : Acquisition 9/25
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:14:36.500000000 Mask #5 37 4 10 112
1 | SCI.Parse_PAS_CAL | Record 00009 : Acquisition 10/25
1 | SCI.Parse_PAS_CAL | STEP = 2 ============== Start + step = 1678 E El CEM Count
1 | SCI.Parse_PAS_CAL | SCET = 2019-06-04T13:14:44.500000000 Mask #1 0 0 0 0
etc
```

The real TCL script used for the test on 4th Jun 2019 was as follows:

```
syslog "PAS enter Calibration mode"
tcsend ZIA58850 {PIA60780 0x0005C2} {PIA60781 0x000066} {PIA60782 0x00075B}
                {PIA60783 0x000FFB} {PIA60784 0x000FF7} {PIA60785 0x000FEF}
                {PIA60786 0x000FDF0} {PIA60787 0x000FBF0} {PIA60788 0x0006B7}
                {PIA60789 0x000000} checks {SPTV DPTV CEV} ack {ACCEPT COMPLETE}
The red parameters are incorrect, it seems it is an operator error.
```

The real TC contents of this day is as follows:

Two last mask arguments correspond to CEM 9 and 10. So the TC conforms the observations.

Conclusions:

1. Data conform to the actual TC contents
2. We have to make a very short test with the part of SWA suite commissioning commands and test it again at MSSL.