### SUIT PV Test-15 (Duration - 10 Days): Solar off pointing.

One Row of Sun Center positions

* Default (ref.) Sun center

CCD – 48’ x 48’ , Sun – 32’ x 32’ , Grid – 4’x4’

Y axis – Roll axis (North South) , X axis – Towards Sun (Yaw axis) Z axis – Pitch (East-West)

#### Duration: 6 hours (Data Volume – 90 Gb)

Coordinates for sun centre in arc min provided in the table below (Pitch,Roll,Position) :

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| +8,+8 ,2 | +8,+4,8 | +8,+0,14 | +8,+8,19 | +8,+8,25 |
| +4,+8,3 | +4,+4,9 | +4,+0,15 | +4,+8,20 | +4,+8,26 |
| +0,+8,4 | +0,+4,10 | +0,+0,(1,7,13,18,24) | +0,+8,21 | +0,+8,27 |
| -4,+8,5 | -4,+4,11 | -4,+0,16 | -4,+8,22 | -4,+8,28 |
| -8,+8,6 | -8,+4,12 | -8,+0,17 | -8,+8,23 | -8,+8,29 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Position | Pitch | Roll | Time | Day |
| 1 | 0 | 0 | 100 min | 1 |
| 2 | +8 | +8 | 100 min | 1 |
| 3 | +4 | +8 | 100 min | 1 |
| 4 | 0 | +8 | 100 min | 2 |
| 5 | -4 | +8 | 100 min | 2 |
| 6 | -8 | +8 | 100 min | 2 |
| 7 | 0 | 0 | 100 min | 3 |
| 8 | +8 | +4 | 100 min | 3 |
| 9 | +4 | +4 | 100 min | 3 |
| 10 | 0 | +4 | 100 min | 4 |
| 11 | -4 | +4 | 100 min | 4 |
| 12 | -8 | +4 | 100 min | 4 |
| 13 | 0 | 0 | 100 min | 5 |
| 14 | +8 | 0 | 100 min | 5 |
| 15 | +4 | 0 | 100 min | 5 |
| 16 | 0 | 0 | 100 min | 6 |
| 17 | -4 | 0 | 100 min | 6 |
| 18 | 0 | 0 | 100 min | 6 |
| 19 | +8 | -4 | 100 min | 7 |
| 20 | +4 | -4 | 100 min | 7 |
| 21 | 0 | -4 | 100 min | 7 |
| 22 | -4 | -4 | 100 min | 8 |
| 23 | -8 | -4 | 100 min | 8 |
| 24 | 0 | 0 | 100 min | 8 |
| 25 | +8 | -8 | 100 min | 9 |
| 26 | +4 | -8 | 100 min | 9 |
| 27 | 0 | -8 | 100 min | 9 |
| 28 | -4 | -8 | 100 min | 10 |
| 29 | -8 | -8 | 100 min | 10 |

#### Additional Prerequisite:

Main door should be open for this test.

#### Procedure:

Uplink and Run program sequence as per SOE. The solar disk will be moved to different parts of the CCD and measurements will be done. Off pointed Solar full disk images shall be taken in all filter combinations. Move spacecraft so that SUN image is moved by 4’ in +/- X and +/- Y direction on CCD. For every row, start with SUN in center and then complete the row starting with – X to + X. So the total (6 X 4) + 5 = 29 positions, full disk all filter images shall be taken.

|  |  |  |  |
| --- | --- | --- | --- |
| Macro Number - Name - Data | Command Code | Macro Cmd Mnemonic | SUIT TM checks |
| **Uplink 100 min. All filter Full Disk seq.** | | | |
| **SUIT\_SEQUENCE\_CHANGE\_TRACKING\_DIS - 342** | 3604AA220002 | SUIT\_MODE\_SEL (suit tracking dis) | SUT-PECmdSuccs inc. by 1, SUT-ExecCmd-ID=22, |
|  | 3604045A0001 | SUIT\_MODE\_SEL |  |
|  | 360400000000 | SUIT\_MODE\_SEL |  |
|  | 3604AE7C0003 | SUIT\_MODE\_SEL |  |
|  | 00DDB1150007 | SUIT\_BDH\_ACQ\_ENA |  |
|  | 00DDB1170007 | SUIT\_HEL1OS\_BDH\_ACQ\_ENA |  |
|  |  |  |  |
| Upload All\_Filter\_FD\_100min\_FPGA\_com\_file.txt | [OPSDIR\_XX] | All\_Filter\_FD\_100min\_FPGA\_com\_file.txt | SUT-ExecCmd-ID=21  SUT-PECmdSuccs inc. by 1 |
| wait for 2 min |  |  |  |
| wait for 100 mins. | Run - 1 |  |  |
| Move spacecraft to new position | | | |
| **SUIT\_PAUSE\_SEQUENCE - 24** | 3604AA500000 | SUIT\_PAUSE\_PROGRAM\_SEQUENCE | SUT-PECmdSuccs inc. by 1, SUT-ExecCmd-ID=50, SUT-Prog-Exec=0 |
| wait till SUT-Prog-Exec=0 |  |  |  |
| **SUIT\_RESTART\_SEQUENCE** | 3604AA530000  [OPSDIR\_XX] | SUIT\_RESTART\_PROGRAM\_SEQUENCE | SUT-PECmdSuccs inc. by 1, SUT-ExecCmd-ID=53, SUT-Prog-Exec=1 |
| wait 100 mins. | Run - 2 | Sun at position 2 on CCD | SUT-ObsID = F7 |
| Move spacecraft to new position | | | |
| **SUIT\_PAUSE\_SEQUENCE - 24** | 3604AA500000 | SUIT\_PAUSE\_PROGRAM\_SEQUENCE | SUT-PECmdSuccs inc. by 1, SUT-ExecCmd-ID=50, SUT-Prog-Exec=0 |
| wait till SUT-Prog-Exec=0 |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **SUIT\_RESTART\_SEQUENCE** | 3604AA530000  [OPSDIR\_XX] | SUIT\_RESTART\_PROGRAM\_SEQUENCE | SUT-PECmdSuccs inc. by 1, SUT-ExecCmd-ID=53, SUT-Prog-Exec=1 |
| wait 100 mins. | Run - 3 | Sun at position 3 on CCD | SUT-ObsID = F7 |
| Move spacecraft to new position | | | |
| **SUIT\_PAUSE\_SEQUENCE - 24** | 3604AA500000 | SUIT\_PAUSE\_PROGRAM\_SEQUENCE | SUT-PECmdSuccs inc. by 1, SUT-ExecCmd-ID=50, SUT-Prog-Exec=0 |
| wait till SUT-Prog-Exec=0 |  |  |  |
|  |  |  |  |
| **Repeat this procedure total 29 times to get solar off pointed images at 29 positions on CCD as given in the table at the beginning of this test.** | | | |

#### TM data Monitoring and Analysis:

Check telemetry parameters through script, they should match with expected values derived from program sequence. None of the error flags in SUIT digital telemetry should be ‘1’ (TRUE), refer to Appendix 1 for the list of parameters.

#### Header data Analysis:

All relevant header parameters should match with expected parameters as per program sequence, which shall be verified through software script.

#### Image data Analysis:

Pipeline software shall be used to analyse these images to create flat images for flat field correction.

#### Acceptance Criteria:

None.

#### Action plan in case if acceptance criteria is not met:

N.A.

#### Ground Test Method and Results:

N.A.

#### Reference Documents:

SUIT\_Electronics\_TM Detail \_v1.pdf, SUIT Header Detail\_V2.pdf