SPI COMMISSIONING ACTIVITIES

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	Total Duration (Estimated):	**850 hours**	**34 min**

LEOP SPI - 000

Title: SPI Pre-Launch Configuration Setting

Description (Purpose): This activity is not under the MOC responsability. Monitoring of the activities will be however possible from MOC via TM link with Baikonur.

The activity is dedicated to set the SPI in launch configuration: lock the cryocoolers for the launch vibrations and activate the redundant S/A heaters to guarantee the minimum start-up temperature of the S/A.

The following instrument configuration will be achieved before launch:
- DPE off
- S/A off
- SPI CDE1/2 in Launch Lock Mode (each CDE powered by two LCLs)
- All redundant substitution heaters switched on
- SPICO heater main switched on
- Antifreeze, Radiator, Annealing, Heat Pipe Thaw heaters switched off

Initial Configuration: See activity description

Constraints: None

Special Pointing Requirements: None

Success Criteria: - CDE Launch Lock Mode achieved
- Power supply and heater loop configuration achieved

Inputs: None

Involved Teams: Alenia Team at launch pad/Instrument Team at MOC

LEOP SPI-000 : SPI Phase 0.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	CDEs setting in Launch lock mode and redundant heaters switched ON	2	00		P1 A	☐	None
	Total Duration :	2	00				

LEOP SPI - 001

Title: SPI Post-Launch Configuration Check

Description (Purpose): Verification of the prescribed SPI configuration after launch and Solar Array Deployment (SAD).
In particular, the Cryocooler configuration will be checked and the instrument thermal environment will be monitored.

Initial Configuration: The expected SPI configuration evolution from launch up to this point is:

- At launch (T0) the status of SPI is the following:
  SPI CDE1/2 : Launch Lock Mode (each CDE powered by two LCLs)
  PPDU Board 3A/B GSW1/2 (Enabling power to DPEs and S/As): A off / B off
  SPI DPE1/2 LCLs: off
  SPI DPE internal relays : off
  SPI S/As LCLs: all off
  SPI AFEE TM/TC IF LCLs: off
  PPDU Board 2A/B GSW1 (Enabling power to SPICO htrs): A on / B off
  SPICO htr LCLs: A on / B off
  PPDU Board 2A/B GSW2 (Enabling power to SPI Camera htrs): A on / B on
  SPI Camera htr LCLs: A off / B on
  PPDU Board 4A/B LCL2 (Enabling power to SPI Heat Pipe, Annealing, Antifreeze and ACS+Mask htrs): A on / B on
  SPI heat pipe thaw htr TSWs: A off / B off
  SPI annealing htr TSWs: A off / B off
  SPI antifreeze 1 htr TSWs: A off / B off
  SPI antifreeze 2 htr TSWs: A off / B off
  SPI ACS+Mask htr TSWs: A off / B on
  PPDU Board 6A/B LCL1 (Enabling power to SPI I/F and Radiator htrs): A off / B on
  TCS SPI I/F htr TSWs: A off / B on
  SPI Radiator htr TSWs: A off / B off
  PPDU Board 7A/B LCL1 (Enabling power to CDE and SDPE2 htrs): A off / B on
  TCS SDPE2 htr TSWs: A off / B on {note that SDPE1 has no htr}
  TCS CDE htr TSWs: A off / B on

- At S/C separation from launcher (T1) : no change

- At Solar Array Deployment (T1+20min), the following automatic activations are triggered by PPDU ECL-->SUN sequence:
  SPI camera htr TSW A off-->on
  SPI ACS + mask htr TSW A off-->on
  PPDU Board 6A LCL1 (Enabling power to SPI I/F and Radiator htrs): off --> on
  TCS SPI I/F htr TSW A off-->on
  PPDU Board 7A LCL1 (Enabling power to CDE and SDPE2 htrs): off --> on
  TCS SDPE2 htr TSW A off-->on

TCS CDE htr TSW A off-->on

Constraints: None

Special Pointing Requirements: None

Success Criteria: - Expected power supply and heater loop configuration confirmed
- Temperatures in range
- CDE in Launch Lock mode and power consumption in range

Inputs: None

Involved Teams: MOC FCT; Alenia and SPI Teams at MOC

LEOP SPI-001 : SPI Phase 0.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	SPI Post Launch Configuration Check	0	05		FCP_SPI1_0001	☐	None
	Total Duration :	0	05				

LEOP SPI - 010

Title: Transition From Launch to Inactive Mode

Description (Purpose): The CDE power supply is reconfigured from two to one LCL operations.
The CDE1 is set as Master and CDE2 as slave, both in Stand-by mode (I.e. SPI compressor not running).
The Antifreeze heaters 1&2 A are switched on (B is left off).

Initial Configuration: Same as per activity SPI-001

Constraints: To be executed asap after SPI-001 (Post Launch Conf Check)

Special Pointing Requirements: None

Success Criteria: - Successful transition to CDE Stand-by mode and achievement of Master-Slave configuration
- Successful activation of antifreeze heater loops

Inputs: None

Involved Teams: MOC FCT; Alenia and SPI Teams at MOC

LEOP SPI-010 : SPI Phase I.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Transition from Launch to Inactive Mode	0	30		FCP_SPI1_0020	☐	None
	Total Duration :	0	30				

LEOP SPI - 011

Title: DPE and IASW Activation

Description (Purpose): Activation of SPI DPE, CSSW, IASW in Stand-by Mode.
Enabling of BCP distribution to the DPE.
Synchronisation of the DPE Local On-Board Time with the CDMU Central On-Board Time.

Housekeeping TM parameters acquired via RTU and DPE mRTU related to power supply, temperature, etc will be verified against the expected values.

IASW parameters will be uplinked and verified as part of the IASW activation procedure.

DPE SW maintenance will be performed during this activity.

Initial Configuration:
- DPE and S/A LCLs off
- DPE Internal relays off

Constraints:
- DPE switch on temperatures achieved
- BRAT enabled for SPI1
- SPI PST Allocation >/= 3 pkt/8s
- Default BCP APID table loaded on CDMU
- BCP G1 and G2 parameters initailised on CDMU (DRMC=DISREGARD, IMM SW OFF=NON IMMINENT)

Special Pointing Requirements: None

Success Criteria:
- DPE power consumption and temperatures in range
- Successful DPE boot sequence
- Successful verification of CSSW TM
- Successful IASW start and parameters uplink
- Successful verification of DPE Test TC reception
- Successful DPE time synchronisation and reception of the BCP
- Sucessful SW upload (if required).

Inputs:
- ES1700_IASW-PAR_coldpdis_0001.TPF
- ES1750_DIAG-PAR_fmconfig_0001.TPF
- New SW image if DPE SW has to be updated

Involved Teams: MOC FCT; Alenia and SPI Teams at MOC

LEOP SPI-011 : SPI Phase I.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools

LEOP SPI-011 : SPI Phase I.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Activation of SPI DPE and CSSW and synchronisation of DPE LOBT with CDMU COBT	0	20		FCP_SPI1_0010	☐	None
20	SPI CSSW TM Check	0	15		FCP_SPI1_9500	☐	None
30	load SPI DPE new SW version (if necessary)	0	00		FCP_SPI1_9810	☐	IMCS OBSM
40	SPI IASW Activation and uplink of parameters	0	20		FCP_SPI1_0041 **Use: ES1700_IASW-PAR_coldpdis_0001.TPF** **Use: ES1750_DIAG-PAR_fmconfig_0001.TPF**	☐	None
50	Enable BCP Distribution to SPI DPE	0	10		FCP_SPI1_0042	☐	None
	Total Duration :	1	25				

LEOP SPI - 012

Title: Subassembly Activations

Description (Purpose): Activation of SPI AFEE, DFEE, ACS and PSD in Stand-by mode.

Checkout of the on-board default configuration and verification of S/A HK TM contained in 64s, 480s, and 3840s cyclic TM.

Initial Configuration:
- SPI IASW in Stand-by Mode
- S/A LCLs off

Constraints:
- To be executed after activity SPI-011 (DPE and IASW activation)
- Subassembly start-up temperatures achieved
- SPI PST Allocation >/= 3 pkt/8s

Special Pointing Requirements: None

Success Criteria: - Successful activation and verification of the configuration and HK TM. In particular check of Autotest bit for ACS and DFEE.

Inputs: None

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-012 : SPI Phase I.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Activation of SPI S/A in Stand-by Mode	0	20		FCP_SPI1_0043	☐	None
20	Check the S/A on-board default configuration and HK TM: send On Request TCs	1	10		FCP_SPI1_0045	☐	None
	Total Duration :	1	30				

LEOP SPI - 013

Title: Outgassing at Low Temperature (37degC)

Description (Purpose): The instrument is configured to perform the outgassing of the spectrometer MLI, electronic boxes, structure and detection plane.

The outgassing is split in two phases :

LOW TEMPERATURE at 37degC of ~10 days duration (this activity)
HIGH TEMPERATURE at 80degC of ~1 day duration (activity 014)

This activity performs the 37degC outgassing, which consists of:

- Transition to Configuration Mode

- The AFEE settings are first uplinked for outgassing at 37degC: i.e. SPI temperature control of the Annealing Heaters set at 37degC (I.e. Outgassing threshold); measurement range for temperature sensors set for wide range; LVPS on and HVPS off.

- The Antifreeze heaters 1&2 A are switched off (B are already off).The Annealing and Heat Pipe Thaw heater loops (A&B) are turned on to reach the 37degC.

- The temperature of 37degC will be maitained for at least 10 days.

NOTE#1 : An additional half a day is to be accounted for transient to reach the desired temperature

NOTE#2 : The CDMU OBM entry to switch off the Annealing heaters in case the cold plate temperature exceeds 111degC should be enabled during the whole Outgassing period.

NOTE#3 : The data acquired during the 37degC temperature outgassing phase will be used to calibrate the PRTU cold plate temperature sensors w.r.t. the AFEE cold plate temperature sensors (more accurate), The results of this calibration will be eventually used to correct the CDMU OBM entry, which is using the PRTU sensors.

NOTE#4 : During the outgassing period the activity SPI-020 can be executed

Initial Configuration: - SPI IASW in Stand-by Mode
- S/A activated and in Stand-by mode

Constraints: - To be executed after activity SPI-011&012 (DPE & S/A activations)
- SPI PST Allocation >/= 3 pkt/8s
- ACS PMTs shall be switched on min one week after the outgassing start (see activity card SPI-014)

Special Pointing Requirements: None

Success Criteria: - The 37degC outgassing successfully executed
- PRTU cold plate temperature sensors successfully calibrated

Inputs: TPF files;
ES1710_AF-CH-OO_def-grnd_0001.TPF
ES1713_AF-HVSET_def-grnd_0001.TPF
ES1711_AF-LW-DT_fmconfig_0001.TPF
ES1712_AF-CHPAR_fmconfig_0001.TPF
ES1710_AF-CH-OO_outgasng_0001.TPF

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-013 : SPI Phase I.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
1	Load and Enable the CDMU On-Board-Monitoring (OBM) entry #088 to switch the annealing heaters in case of detector overtemperature	0	10		FCP__SPI1_185	☐	None
2	Load and Enable the CDMU On-Board-Monitoring (OBM) entry #089 to switch the annealing heaters in case of detector overtemperature	0	10		FCP__SPI1_186	☐	None
10	AFEE safe configuration uploading (def-grnd):	0	10		FCP_SPI1_0170 **Use: ES1710_AF-CH-OO_def-grnd_0001.TPF** **Use: ES1713_AF-HVSET_def-grnd_0001.TPF** **Use: ES1711_AF-LW-DT_fmconfig_0001.TPF** **Use: ES1712_AF-CHPAR_fmconfig_0001.TPF**	☐	None
20	Start of Outgassing at 37 degC : switch on of Annealing heaters A&B with regulation set at 37degC; switch on of Heat Pipe Heaters A&B	0	30		FCP_SPI1_0191 **Use: ES1710_AF-CH-OO_outgasng_0001.TPF**	☐	None
30	Wait ~half a day to reach 37 degC	11	30		Commissioning TL	☐	None
40	When the 37degC temperature is reached, wait additional ~10 days	240	00		Commissioning TL	☐	None

LEOP SPI-013 : SPI Phase I.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
50	Offline activity: During the 37 degC period execute the calibration of the PRTU cold plate temperature sensors against the AFEE cold plate temperature sensors (more accurate). Update of the OBM entries #088 and #089 in the ODB could be also required. See FCP_SPI1_0190 step 4	0	00		FCP_SPI1_0190	☐	None
	Total Duration :	253	00				

LEOP SPI - 014

Title: Outgassing at High Temperature (80degC)

Description (Purpose): This activity will be scheduled immediately after the SPI-013 (outgassing at 37degC).

The outgassing at 80degC consists of:

- The AFEE settings are changed to regulate the temperature at 103degC (I.e. Annealing threshold); Measurement range for temperature sensors is kept set for wide range; LVPS on and HVPS off.

- MOC will switch Annealing heater A off once 78degC are reached.

- MOC will switch on/off the Annealing heater B to keep the temperature between 78-82degC for at least 24 hr.

NOTE#1 : An additional half a day is to be accounted for transients to reach the desired temperature.

NOTE#2 : The CDMU OBM entry to switch off the Annealing heaters in case the cold plate temperature exceeds 111degC will be enabled during the whole Outgassing period.

Initial Configuration: As per the end of SPI-013 (Outgassing at 37degC), i.e.:
- SPI IASW and S/A in Configuration Mode
- Annealing Heaters (A&B) and Heat Pipe Heaters (A&B) switched on
- On AFEE: Outgassing threshold selected (37degC); LVPS on; HVPS (GeD HV) off

Constraints: - To be executed immediately after the activity SPI-013 (37degC Outgassing), when the 10 days of outgassing at 37degC are elapsed and after SPI-014 (S/A config upload, done during the 10 days)
- Cold plate temperature at 37degC
- CDMU OBM entry for annealing heaters loaded and enabled
- SPI PST Allocation >/= 3 pkt/8s

Special Pointing Requirements: None

Success Criteria: - The 80degC outgassing successfully executed

Inputs: - ES1710_AF-CH-OO_annealng_0001.TPF

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-014 : SPI Phase I.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools

LEOP SPI-014 : SPI Phase I.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Start Outgassing at 80degC: The AFEE settings are changed to regulate the temperature at 103degC (I.e. Annealing threshold); Measurement range for temperature sensors is kept set for wide range; LVPS on and HVPS off. See FCP_SPI1_0193 up to step 3.4	0	20		FCP_SPI1_0192 **Use: ES1710_AF-CH-OO_annealng_0001.TPF**	☐	None
20	Wait ~half a day to reach 78degC. See FCP_SPI1_0192 step 3.5 and 3.6	11	30		FCP_SPI1_0192	☐	None
30	When 78degC is reached switch off Annnealing heater A See FCP_SPI1_0192 step 3.7	0	01		FCP_SPI1_0192	☐	None
40	Repeat the following command sequence under ground control to maintain the temperature between78 and 82degC for 24 hours: - When 82degC is reached switch off Annealing heater B - When 78degC is reached switch on Annealing heater B See FCP_SPI1_0192 step 3.8 onward	24	00		FCP_SPI1_0192	☐	None
	Total Duration :	35	51				

LEOP SPI - 020

Title: S/A Configuration Upload / Functional Test with Hot Detectors

Description (Purpose): After the start of the outgassing at 37degC, about one week later, the following operations should be performed:

- If needed, the S/A SW maintenance : the affected S/A will enter S/W Maintenance Mode, patched and then back to nominal Configuration Mode;

- The uplink of the Nominal flight configuration settings for AFEE, ACS, PSD and DFEE. Except for GeD High Voltages (AFEE HVPS) that will be kept off

NOTE#1: As part of the ACS configuration settings, the ACS PMT High Voltages will be switched ON for the first time.

- A short transition to Operational Mode in order to check the integrity of the detector chains (AFEE count rates should be > 0 due to the noise at 37degC temperature).

NOTE#2: VC7 TM generated in Operational Mode will be analysed by SPI Team at MOC using their analysis tools.

Initial Configuration: SPI IASW and S/A in Configuration Mode

Constraints:
- To be executed about one week after the 37degC outgassing begin (i.e. activity SPI-013), while waiting for the 10 days to elapse
- SPI PST allocation >/= 46 pkts/8s before the transition to Operational Mode
- BCP distribution to SPI1 enabled
- Outside of Rad Belts

Special Pointing Requirements: None

Success Criteria:
- Successful S/A Flight configuration uploading
- Successful ACS PMT High Voltage switch on
- Verification of the Detector chains integrity, i.e. AFEE counting rates > 0 when in Operational Mode

Inputs: S/A SW images if S/W maintenance is needed
TPF files:
ES1710_AF-CH-OO_outgasng_0001.TPF
ES1711_AF-LW-DT_svt-36pk_0002.TPF
ES1712_AF-CHPAR_fmconfig_0001.TPF
ES1713_AF-HVSET_def-grnd_0001.TPF
ES1720_DF-SWPAR_fmconfig_0001.TPF
ES1721_DF-CLPAR_fmconfig_0002.TPF
ES1722_DF-AFADJ_fmconfig_0002.TPF
ES1730_AS-VTPLS_fmconfig_0001.TPF
ES1731_AS-IS-ED_fmconfig_0001.TPF
ES1732_AS-SERVS_def-grnd_0001.TPF
ES1733_AS-VTCNF_fmconfig_0002.TPF
ES1734_AS-RT-MT_fmconfig_0001.TPF

ES1735_AS-VTDLY_fmconfig_0001.TPF
ES1736_AS-EVTGR_fmconfig_0001.TPF
ES1737_AS-ENDSC_fmconfig_0002.TPF
ES1738_AS-HVSET_fmconfig_0002.TPF
ES1732_AS-SERVS_hv-tests_0002.TPF
ES1732_AS-SERVS_fmconfig_0001.TPF
ES1741_PD-LWTHR_fmconfig_0002.TPF
ES1742_PD-HGTHR_fmconfig_0001.TPF
ES1744_PD-ADOFS_fmconfig_0001.TPF
ES1745_PD-CV-RT_fmconfig_0001.TPF
ES1740_PD-DETED_lothde00_0001.TPF
ES1740_PD-DETED_lothde01_0001.TPF
ES1740_PD-DETED_lothde02_0001.TPF
ES1740_PD-DETED_lothde03_0001.TPF
ES1740_PD-DETED_lothde04_0001.TPF
ES1740_PD-DETED_lothde05_0001.TPF
ES1740_PD-DETED_lothde06_0001.TPF
ES1740_PD-DETED_lothde07_0001.TPF
ES1740_PD-DETED_lothde08_0001.TPF
ES1740_PD-DETED_lothde09_0001.TPF
ES1740_PD-DETED_lothde10_0001.TPF
ES1740_PD-DETED_lothde11_0001.TPF
ES1740_PD-DETED_lothde12_0001.TPF
ES1740_PD-DETED_lothde13_0001.TPF
ES1740_PD-DETED_lothde14_0001.TPF
ES1740_PD-DETED_lothde15_0001.TPF
ES1740_PD-DETED_lothde16_0001.TPF
ES1740_PD-DETED_lothde17_0001.TPF
ES1740_PD-DETED_lothde18_0001.TPF
ES1740_PD-DETED_fmconfig_0001.TPF
ES1711_AF-LW-DT_fmconfig_0001.TPF

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-020 : SPI Phase I.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	DFEE software maintenance if required (Record patch)	0	00		FCP_SPI1_9835	☐	IMCS OBSM
20	PSD software maintenance if required (Record patch)	0	00		FCP_SPI1_9855	☐	IMCS OBSM
30	ACS software maintenance if required (Record patch)	0	00		FCP_SPI1_9875	☐	IMCS OBSM

LEOP SPI-020 : SPI Phase I.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
40	AFEE Flight configuration uploading: NOTE: ES1710_AF-CH-OO_fmconfig_0001.TPF is not loaded because would switch on HVPS and invalidate trhe configuration needed for outgassing	0	20		FCP_SPI1_0170 **Use: ES1710_AF-CH-OO_outgasng_0001.TPF** **Use: ES1711_AF-LW-DT_svt-36pk_0002.TPF** **Use: ES1712_AF-CHPAR_fmconfig_0001.TPF** **Use: ES1713_AF-HVSET_def-grnd_0001.TPF**	☐	None
50	DFEE Flight configuration uploading	0	10		FCP_SPI1_0170 **Use: ES1720_DF-SWPAR_fmconfig_0001.TPF** **Use: ES1721_DF-CLPAR_fmconfig_0002.TPF** **Use: ES1722_DF-AFADJ_fmconfig_0003.TPF**	☐	None
60	ACS Flight configuration uploading (except PMT HV)	0	15		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_fmconfig_0001.TPF** **Use: ES1731_AS-IS-ED_fmconfig_0001.TPF** **Use: ES1732_AS-SERVS_def-grnd_0001.TPF** **Use: ES1733_AS-VTCNF_fmconfig_0002.TPF** **Use: ES1734_AS-RT-MT_fmconfig_0001.TPF** **Use: ES1735_AS-VTDLY_fmconfig_0001.TPF** **Use: ES1736_AS-EVTGR_fmconfig_0001.TPF** **Use: ES1737_AS-ENDSC_fmconfig_0002.TPF** **Use: ES1738_AS-HVSET_fmconfig_0002.TPF**	☐	None
70	Wait 1/2 hour for SPI go-ahead : SPI team to check ACS telemetry with PMT HV off	0	30		Commissioning TL	☑	IOSM tool on ACS EGSEat MOC
80	ACS PMT HV switch on for FEE 0, 18, 36 and 54	0	05		FCP_SPI1_0170 **Use: ES1732_AS-SERVS_hv-tests_0002.TPF**	☐	None
90	Wait 1 hour for SPI go-ahead : SPI team to check ACS counting rate of FEE with HV applied	1	00		Commissioning TL	☑	IOSM tool on ACS EGSEat MOC
100	ACS switch on all the PMT HVs (nominal flight configuration)	0	05		FCP_SPI1_0170 **Use: ES1732_AS-SERVS_fmconfig_0001.TPF**	☐	None
110	PSD Flight configuration uploading, except ES1740_PD-DETED TPF	0	10		FCP_SPI1_0170 **Use: ES1741_PD-LWTHR_fmconfig_0002.TPF** **Use: ES1742_PD-HGTHR_fmconfig_0001.TPF** **Use: ES1744_PD-ADOFS_fmconfig_0001.TPF** **Use: ES1745_PD-CV-RT_fmconfig_0001.TPF**	☐	None

LEOP SPI-020 : SPI Phase I.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
120	PSD load low threshold detector : FET=6 LLD=1 and only detector 00 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde00_0001.TPF**	☑	SPI W/S at MOC
130	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET. NOTE: the change will be done directly on the Mstack, starting from the previous TPF	0	08		Commissioning TL	☐	None
140	PSD load low threshold detector : FET=6 LLD=1 and only detector 01 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde01_0001.TPF**	☑	SPI W/S at MOC
150	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
160	PSD load low threshold detector : FET=6 LLD=1 and only detector 02 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde02_0001.TPF**	☑	SPI W/S at MOC
170	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
180	PSD load low threshold detector : FET=6 LLD=1 and only detector 03 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde03_0001.TPF**	☑	SPI W/S at MOC
190	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
200	PSD load low threshold detector : FET=6 LLD=1 and only detector 04 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde04_0001.TPF**	☑	SPI W/S at MOC
210	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
220	PSD load low threshold detector : FET=6 LLD=1 and only detector 05 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde05_0001.TPF**	☑	SPI W/S at MOC
230	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None

LEOP SPI-020 : SPI Phase I.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
240	PSD load low threshold detector : FET=6 LLD=1 and only detector 06 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde06_0001.TPF**	☑	SPI W/S at MOC
250	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
260	PSD load low threshold detector : FET=6 LLD=1 and only detector 07 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde07_0001.TPF**	☑	SPI W/S at MOC
270	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
280	PSD load low threshold detector : FET=6 LLD=1 and only detector 08 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde08_0001.TPF**	☑	SPI W/S at MOC
290	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
300	PSD load low threshold detector : FET=6 LLD=1 and only detector 09 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde09_0001.TPF**	☑	SPI W/S at MOC
310	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
320	PSD load low threshold detector : FET=6 LLD=1 and only detector 10 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde10_0001.TPF**	☑	SPI W/S at MOC
330	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
340	PSD load low threshold detector : FET=6 LLD=1 and only detector 11 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde11_0001.TPF**	☑	SPI W/S at MOC
350	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
360	PSD load low threshold detector : FET=6 LLD=1 and only detector 12 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde12_0001.TPF**	☑	SPI W/S at MOC

LEOP SPI-020 : SPI Phase I.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
370	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
380	PSD load low threshold detector : FET=6 LLD=1 and only detector 13 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde13_0001.TPF**	☑	SPI W/S at MOC
390	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
400	PSD load low threshold detector : FET=6 LLD=1 and only detector 14 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde14_0001.TPF**	☑	SPI W/S at MOC
410	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
420	PSD load low threshold detector : FET=6 LLD=1 and only detector 15 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde15_0001.TPF**	☑	SPI W/S at MOC
430	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
440	PSD load low threshold detector : FET=6 LLD=1 and only detector 16 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde16_0001.TPF**	☑	SPI W/S at MOC
450	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
460	PSD load low threshold detector : FET=6 LLD=1 and only detector 17 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde17_0001.TPF**	☑	SPI W/S at MOC
470	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None
480	PSD load low threshold detector : FET=6 LLD=1 and only detector 18 enable	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lothde18_0001.TPF**	☑	SPI W/S at MOC
490	IF no channel rate or LLD rate is observed by the SPI Team, THEN repeat previous step changing the LLD and/or the FET.	0	08		Commissioning TL	☐	None

LEOP SPI-020 : SPI Phase I.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
500	PSD load thresholds that assures PSD TT emission (FET = 6; LLD=1). This will allow to see in next step if PSD TT are sent to DFEE, i.e. to check if the PSD - DFEE link is okay.	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_????????_0001.TPF**	☐	None
510	SPI partial functional test in Operational mode with hot detectors and GeD HV OFF. Check of the AFEE Time Tag counting rate for at least 10 min.	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
520	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
530	Wait further 20 minutes for go ahead from SPI Team to process the acquired data and to update the next TPF if required.	0	20		Commissioning TL	☐	None
540	Restore AFEE nominal flight configuration	0	02		FCP_SPI1_0170 **Use: ES1711_AF-LW-DT_fmconfig_0001.TPF**	☐	None
545	Restore PSD nominal flight configuration	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_fmconfig_0001.TPF**	☐	None
550	Transition to operational mode for 10min	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
560	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
	Total Duration :	10	23				

LEOP SPI - 030

Title: SPI DPE1 Software Dump

Description (Purpose): This activity has the major objective to validate the reference DPE SW image on-ground. It has low priority and can be scheduled any time.

If a new version of DPE SW was already uploaded during the DPE activation, then this activity will not be executed.

This activity foresees the dump of the DPE SW to be captured by the OBSM and compared with the ground reference image if available at MOC. If not available, the goal of the activity is to build them from the dump image.

NOTE: The memory dump speed depends on the current PST allocation of SPI1 TM.

Initial Configuration: SPI in Configuration or Stand-by Mode

Constraints: To be executed after SPI-011 activity (DPE Activation).

Special Pointing Requirements: None

Success Criteria: - Successful dump and capture of the DPE SW image.
- Successful verification of the ground reference image (if available).

Inputs: DPE SW images in OBSM format currently loaded on-board.

Involved Teams: MOC FCT

LEOP SPI-030 : SPI Phase I.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
1	SPI DPE1 SW memory dump and capture by OBSM	0	30		FCP_SPI1_9800 **Use: IIMG_P_SPI_0129_00002_F_V_004_000_0.INT**	☐	IMCS OBSM
	Total Duration :	0	30				

LEOP SPI - 031

Title: Subassembly Software Dumps

Description (Purpose): This activity has the objective to validate the reference S/A SW images on-ground. It has low priority and can be scheduled at the end of SPI commissioning.

The activity foresees the dump of the S/A SW to be captured by the OBSM and compared with the ground reference images if available at MOC. If not available, the goal is to build them from the dump image.

If a new version of S/A SW was already uploaded during previous activities, then this activity or selected part of it will not be executed.

NOTE: The memory dump speed depends on the current PST allocation of SPI TM.

Initial Configuration: SPI IASW and S/A in Configuration Mode

Constraints: - To be executed after SPI-012 activity (S/A Activations)
- SPI PST Allocation >/= 3 pkt/8s

Special Pointing Requirements: None

Success Criteria: - Successful dump and capture of the S/A SW images.
- Successful verification of the ground reference images (if available).

Inputs: S/A SW image in OBSMS format :
- IIMG_P_ACS_1025_00003_F_V_. . . . .INT (ACS)
- IIMG_P_PSD_1025_00004_F_V_. . . . .INT (PSD)
- IIMG_P_SPD_1025_00005_F_V_. . . . .INT (DFEE)

Involved Teams: MOC FCT

LEOP SPI-031 : SPI Phase I.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	DFEE1 SW memory dump and capture by OBSM	1	30		FCP_SPI1_9820	☐	IMCS OBSM
					Use: IIMG_P_SPD_1025_00005_F_V_010_005_0.INT		
20	PSD SW memory dump and capture by OBSM	1	30		FCP_SPI1_9840	☐	IMCS OBSM
					Use: IIMG_P_PSD_1025_00004_F_V_500_000_0.INT		
30	ACS VCU1 SW memory dump and capture by OBSM	1	30		FCP_SPI1_9860	☐	IMCS OBSM
					Use: IIMG_P_ACS_1025_00003_F_V_001_007_1.INT		
	Total Duration :	4	30				

LEOP SPI - 040

Title: ACS Event Trigger Threshold Checks

Description (Purpose): Check of the ACS event trigger thresholds by setting TC para E6100 to E6190 = 1 to force the generation of the veto signals by each valid event.

FEE count rates reported in the ACS HK TM will be analysed by SPI Team at MOC. Count rates are expected within a predefined range.

At the end, the nominal fligh configuration (E6100 to E6190 = 0) is restored.

Initial Configuration:
- IASW and ACS in Configuration Mode
- S/A nominal Flight configuration (in particular ACS HV switched on), except for AFEE (GeD HV off)

Constraints:
- To be executed in parallel to SPI-060 (Passive cooling) and before to reach 35degC
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 3 pkt/8s

Special Pointing Requirements: None

Success Criteria: - Veto signal generated with count rates within the expected range

Inputs: TPF_NAME
ES1733_AS-VTCNF_leop-040_0001.TPF
ES1733_AS-VTCNF_fmconfig_0002.TPF

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-040 : SPI Phase I.3

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	ACS configuration up-loading to force Veto signal generation	0	05		FCP_SPI1_0170 **Use: ES1733_AS-VTCNF_leop-040_0001.TPF**	☐	None
20	Check in ACS TM the FEE count rates for 1 and 1/2 hour. Wait for go-ahead from SPI team	1	30		Commissioning TL	☑	IOSM tool on ACS EGSE at MOC CNES EGSE
30	Restore ACS nominal flight configuration	0	05		FCP_SPI1_0170 **Use: ES1733_AS-VTCNF_fmconfig_0002.TPF**	☐	None
	Total Duration :	1	40				

LEOP SPI - 050

Title: ACS Calibrations

Description (Purpose): The ACS nominal Flight configuration is first restored.

The veto rate meter measurement times are changed, then an ACS energy discriminator thresholds calibration is performed to check the count rates exceeding 32767. If necessary this preliminary step is performed twice.

The calibration will be then repeated 50 times consecutively, in order to get the proper statistics.

NOTE : VC0 Calibration TM packets will be analysed by SPI Team at MOC using their analysis tools.

Initial Configuration:
- IASW and ACS in Configuration Mode
- S/A nominal Flight configuration (in particular ACS HV switched on), except for AFEE (GeD HV off)

Constraints:
- To be executed in parallel to SPI-060 (Passive cooling) and before to reach 35degC
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 10 pkt/8s

Special Pointing Requirements: None

Success Criteria: - 50 ACS calibration runs succefully performed: all the TM packets acquired by the SPI W/S at MOC

Inputs: ES1733_AS-VTCNF_fmconfig_0002.TPF
ES1734_AS-RT-MT_rmmt1965_000x.TPF

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-050 : SPI Phase I.3

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Restore ACS Nominal Flight configuration, if necessary	0	02		FCP_SPI1_0170 **Use: ES1733_AS-VTCNF_fmconfig_0002.TPF**	☐	None
20	Set all FEE veto rate meter measurement times (TC para E6300-E6391) to the maximum value (raw: 15 eng: 1.965 sec.)	0	02		FCP_SPI1_0170 **Use: ES1734_AS-RT-MT_rmmt1965_0001.TPF**	☐	None
25	Perform 1 ACS calibration	0	10		FCP_SPI1_0250	☐	None

LEOP SPI-050 : SPI Phase I.3

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
30	- SPI team to confirm that the Calibration TM packets have been received. - SPI team to check that the recorded count rates at threshold level 1 are not exceeding the limit of the counters of 32767.	0	13		Commissioning TL	☑	Light yield on ACS EGSE at MOC
40	If necessary, repeat steps 20 to 30 to set a reduced value of FEE veto rate meter measurement times. This will be performed by submitting a update of the TPF file used in step 20	0	25		FCP_SPI1_0170 **Use: ES1734_AS-RT-MT_rmmt1965_0002.TPF**	☐	None
50	Perform 50 ACS calibration runs. After each run, wait for go-ahead from SPI Team: SPI Team should confirm that the Calibration TM packets have been received. NOTE : The processing of the calibration data takes long time and will be executed off line by SPI team	6	00		FCP_SPI1_0250	☑	Light yield on ACS EGSE at MOC
	Total Duration :	6	52				

LEOP SPI - 060

Title: Passive Cooling

Description (Purpose): This activity terminates the outgassing phase of the instrument.

It consists in the transition from Outgassing to Configuration Mode, by switching off Heat Pipes and Annealing heaters and switching on the Antifreeze 1&2 heaters A.

With this configuration the passive cooling of the detector is started and will last until the cryocooler start-up temperature is achieved (35degC).

Initial Configuration: - SPI IASW and S/A in Configuration Mode
- GeD HV off

Constraints: - To be executed after the Outgassing period of 12days (activity 013 + 014) is elapsed at the required temperatures.
- SPI PST Allocation >/= 3 pkt/8s

Special Pointing Requirements: None

Success Criteria: - The cryocooler start-up temperature is reached (35degC) within 3 days

Inputs: None

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-060 : SPI Phase II.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Stop Outgassing (Outgassing to Configuration Mode)	0	05		FCP_SPI1_0200	☐	None
15	Remove all CDMU On-Board Monitoring (OBM) entries for SPI annealing heaters	0	15			☐	None
20	It takes about 3 days to achieve the 35degC cryocooler start-up temperature. During this time other SPI activities can be scheduled	72	00		Commissioning TL	☐	None

LEOP SPI-060 : SPI Phase II.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
30	During this period monitor the temperature decrease using the following TM: @ Compressor temperatures: -22degC < T5006, T5007, T5024 and T5025 < 38degC @ Cold plate temperatures: 89degK < E0391, E0392, E0393, E0394 < 308degK(35degC) @ Thermal braids temperatures: E0397, E0398 < 308degK(35degC)	0	00		FCP_SPI1_0200	☐	None
	Total Duration :	72	20				

LEOP SPI - 070

Title: First Tuning of the ACS FEE Count Rates

Description (Purpose): The objective of this activity is to analyse and first tune the FEE count rates, dead time and number of veto gate.

The ACS energy thresholds will be set at 100keV, 150keV, 200keV, 300keV. For each setting a data acquisition of about 100min in Operational Mode will be performed.

NOTE1: The commanding will be performed by MOC according to the pre-defined command timeline. SPI Team is requested to provide a feedback when the requested TM has been acquired. The TM will be processed off-line by SPI if cannot be done in the allocated time.

NOTE2: FEE count rates, dead time and number of veto gate analysis will be performed by SPI Team using their tools at MOC.

NOTE3: Photon data will be empty because hot detector events are meaningless.

Initial Configuration:
- SPI IASW and S/A in Configuration Mode
- S/A nominal Flight configuration, except for AFEE (GeD HV off)

Constraints:
- To be executed in parallel to SPI-060 (Passive cooling) and before to reach 117degK on the cold-plate
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s

Special Pointing Requirements: None

Success Criteria: - Succesful analysis/tuning of the FEE count rates, dead time and number of veto gate.

Inputs: TPF files:
ES1721_DF-CLPAR_assodisa_0002.TPF
ES1737_AS-ENDSC_fmconfig_0002.TPF
ES1737_AS-ENDSC_0150-kev_0001.TPF
ES1737_AS-ENDSC_0200-kev_0001.TPF
ES1737_AS-ENDSC_0300-kev_0001.TPF

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-070 : SPI Phase II.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
1	Check that GeD HV are off	0	04		Commissioning TL	☐	None

LEOP SPI-070 : SPI Phase II.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Load DFEE configuration to disable the VETO-PSD/AFEE association	0	05		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_assodisa_0002.TPF**	☐	None
20	100 keV threshold loading	0	05		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_fmconfig_0002.TPF**	☐	None
30	Transition to Operational Photon/Photon mode Wait ~1.5hr for data collection and go-ahead from SPI Team	1	30		FCP_SPI1_0130	☑	IOSM tool on ACS EGSEat MOC
40	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
50	150 keV threshold loading	0	04		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_0150-kev_0001.TPF**	☐	None
60	Transition to Operational Photon/Photon mode Wait ~1.5hr for data collection and go-ahead from SPI Team	1	30		FCP_SPI1_0130	☑	IOSM tool on ACS EGSEat MOC
70	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
80	200 keV threshold loading	0	04		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_0200-kev_0001.TPF**	☐	None
90	Transition to Operational Photon/Photon mode Wait ~1.5hr for data collection and go-ahead from SPI Team	1	30		FCP_SPI1_0130	☑	IOSM tool on ACS EGSEat MOC
100	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
110	300 keV threshold loading	0	04		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_0300-kev_0001.TPF**	☐	None
120	Transition to Operational Photon/Photon mode Wait ~1.5hr for data collection and go-ahead from SPI Team	1	30		FCP_SPI1_0130	☑	IOSM tool on ACS EGSEat MOC
130	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
	Total Duration :	6	30				

LEOP SPI - 080

Title: Influence of the Dead Time of the Saturating Extension

Description (Purpose): The objective of this activity is to characterise the FEE dead time against the extension of the veto saturated events.

The ACS energy thresholds will be set at 100keV, 150keV, 200keV, 300keV. For each threshold value, 3 values of the extension of the veto saturated events (0, 5000, 7500) will be set (the nominal value was tested in activity SPI-070).
For each different setting a data acquisition of about 2min in Operational Mode will be performed.

NOTE1: The commanding will be performed by MOC according to the pre-defined command timeline. SPI Team is requested to provide a feedback when the requested TM has been acquired. The TM will be processed off-line by SPI if cannot be done in the allocated time.

NOTE2: FEE count rates, dead time and number of veto gate analysis will be performed by SPI Team using their tools at MOC.

Initial Configuration:
- SPI IASW and S/A in Configuration Mode
- S/A nominal Flight configuration, except for AFEE (GeD HV off) and VETO-PSD/AFEE association disabled on DFEE

Constraints:
- To be executed in parallel to SPI-060 (Passive cooling) and after SPI-070
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s

Special Pointing Requirements: None

Success Criteria: - Succesful characterisation of the FEE dead time against the extension of the veto saturated events

Inputs:
ES1722_DF-AFADJ_xtdnva00_0002.TPF
ES1737_AS-ENDSC_fmconfig_0002.TPF
ES1722_DF-AFADJ_xtdnva25_0002.TPF
ES1722_DF-AFADJ_xtdnva37_0002.TPF
ES1722_DF-AFADJ_xtdnva00_0002.TPF
ES1737_AS-ENDSC_0150-kev_0001.TPF
ES1722_DF-AFADJ_xtdnva25_0002.TPF
ES1722_DF-AFADJ_xtdnva37_0002.TPF
ES1722_DF-AFADJ_xtdnva00_0002.TPF
ES1737_AS-ENDSC_0200-kev_0001.TPF
ES1722_DF-AFADJ_xtdnva25_0002.TPF
ES1722_DF-AFADJ_xtdnva37_0002.TPF
ES1722_DF-AFADJ_xtdnva00_0002.TPF
ES1737_AS-ENDSC_0300-kev_0001.TPF
ES1722_DF-AFADJ_xtdnva25_0002.TPF
ES1722_DF-AFADJ_xtdnva37_0002.TPF

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-080 : SPI Phase II.3

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
1	Check that GeD HV are off	0	02		Commissioning TL	☐	None
10	Load the 0 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva00_0002.TPF**	☐	None
20	100 keV threshold loading	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_fmconfig_0002.TPF**	☐	None
30	Transition to Operational Photon/Photon mode 100 keV threshold with 0 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
40	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
50	Load the 5000 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva25_0002.TPF**	☐	None
60	Transition to Operational Photon/Photon mode 100 keV threshold with 5000 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
70	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
80	Load the 7500 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva37_0002.TPF**	☐	None
90	Transition to Operational Photon/Photon mode 100 keV threshold with 7500 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
100	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
110	Load the 0 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva00_0002.TPF**	☐	None
120	150 keV threshold loading	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_0150-kev_0001.TPF**	☐	None
130	Transition to Operational Photon/Photon mode 150 keV threshold with 0 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSEat MOC DFEE EGSE
140	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None

LEOP SPI-080 : SPI Phase II.3

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
150	Load the 5000 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva25_0002.TPF**	☐	None
160	Transition to Operational Photon/Photon mode 150 keV threshold with 5000 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSEat MOC DFEE EGSE
170	Back to configuration mode	0	01		P16	☐	None
180	Load the 7500 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva37_0002.TPF**	☐	None
190	Transition to Operational Photon/Photon mode 150 keV threshold with 7500 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
200	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
210	Load the 0 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva00_0002.TPF**	☐	None
220	200 keV threshold loading	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_0200-kev_0001.TPF**	☐	None
230	Transition to Operational Photon/Photon mode 200 keV threshold with 0 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
240	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
250	Load the 5000 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva25_0002.TPF**	☐	None
260	Transition to Operational Photon/Photon mode 200 keV threshold with 5000 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
270	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
280	Load the 7500 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva37_0002.TPF**	☐	None

LEOP SPI-080 : SPI Phase II.3

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
290	Transition to Operational Photon/Photon mode 200 keV threshold with 7500 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
300	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
310	Load the 0 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva00_0002.TPF**	☐	None
320	300 keV threshold loading	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_0300-kev_0001.TPF**	☐	None
330	Transition to Operational Photon/Photon mode 300 keV threshold with 0 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSEat MOC DFEE EGSE
340	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
350	Load the 5000 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva25_0002.TPF**	☐	None
360	Transition to Operational Photon/Photon mode 300 keV threshold with 5000 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSEat MOC DFEE EGSE
370	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
380	Load the 7500 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtdnva37_0002.TPF**	☐	None
390	Transition to Operational Photon/Photon mode 300 keV threshold with 7500 extension value of the veto saturated events on DFEE	0	02		FCP_SPI1_0130	☑	IOSM tool on ACS EGSEat MOC DFEE EGSE
400	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
410	Wait go-ahead from SPI Team before proceeding with next activity. SPI Team should check if all the required adata acquisition were successfully received.	0	10		Commissioning TL	☐	None
	Total Duration :	1	24				

LEOP SPI - 090

Title: Influence of the different ACS sections on the dead time

Description (Purpose): Using the result of the FEE counting balancing of activity SPI-070 with a threshold around 100 keV, the activity performs the dead time measurements with various configuration in order to determine the contribution of the different ACS parts like that:

1 alone
1+2
1+2+3
1+2+3+4
1+2+3+4+5
1+2+3+4+5+6
1+2+3+4+5+6+7
2+3+4+5+6+7
3+4+5+6+7
4+5+6+7
5+6+7
6+7
7

NOTE1: The commanding will be performed by MOC according to the pre-defined command timeline. SPI Team is requested to provide a feedback when the requested TM has been acquired. The TM will be processed off-line by SPI if cannot be done in the allocated time.

NOTE2: FEE count rates, dead time and number of veto gate analysis will be performed by SPI Team using their tools at MOC.

Initial Configuration:
- SPI IASW and S/A in Configuration Mode
- S/A nominal Flight configuration, except for AFEE (GeD HV off) and VETO-PSD/AFEE association disabled on DFEE

Constraints:
- To be executed in parallel to SPI-060 (Passive cooling) and after SPI-080
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s

Special Pointing Requirements: None

Success Criteria:
- Successful determination of the count rates, dead time and veto gates of the various ACS sections

Inputs:
ES1730_AS-VTPLS_m1000000_0001.TPF
ES1730_AS-VTPLS_m1200000_0001.TPF
ES1730_AS-VTPLS_m1230000_0001.TPF
ES1730_AS-VTPLS_m1234000_0001.TPF
ES1730_AS-VTPLS_m1234500_0001.TPF

ES1730_AS-VTPLS_m1234560_0001.TPF
ES1730_AS-VTPLS_m1234567_0001.TPF
ES1730_AS-VTPLS_m0234567_0001.TPF
ES1730_AS-VTPLS_m0034567_0001.TPF
ES1730_AS-VTPLS_m0004567_0001.TPF
ES1730_AS-VTPLS_m0000567_0001.TPF
ES1730_AS-VTPLS_m0000067_0001.TPF
ES1730_AS-VTPLS_m0000007_0001.TPF
ES1720_DF-SWPAR_fmconfig_0001.TPF
ES1721_DF-CLPAR_fmconfig_0002.TPF
ES1722_DF-AFADJ_fmconfig_0003.TPF
ES1730_AS-VTPLS_fmconfig_0001.TPF
ES1731_AS-IS-ED_fmconfig_0001.TPF
ES1732_AS-SERVS_fmconfig_0001.TPF
ES1733_AS-VTCNF_fmconfig_0002.TPF
ES1734_AS-RT-MT_fmconfig_0001.TPF
ES1735_AS-VTDLY_fmconfig_0001.TPF
ES1736_AS-EVTGR_fmconfig_0001.TPF
ES1737_AS-ENDSC_fmconfig_0002.TPF
ES1738_AS-HVSET_fmconfig_0002.TPF
- Results of activity SPI-070

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-090 : SPI Phase II.4

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
1	Check that GeD HV are off	0	02		Commissioning TL	☐	None
10	100 keV threshold loading with FEE veto mask disable except for part 1	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m1000000_0001.TPF**	☐	None
20	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
30	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
40	100 keV threshold loading with FEE veto mask disable except for parts 1+2	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m1200000_0001.TPF**	☐	None
50	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
60	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None

LEOP SPI-090 : SPI Phase II.4

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
70	100 keV threshold loading with FEE veto mask disable except for parts 1+2+3	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m1230000_0001.TPF**	☐	None
80	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
90	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
100	100 keV threshold loading with FEE veto mask disable except for parts 1+2+3+4	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m1234000_0001.TPF**	☐	None
110	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
120	Back to configuration mode	0	01		P16	☐	None
130	100 keV threshold loading with FEE veto mask disable except for parts 1+2+3+4+5	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m1234500_0001.TPF**	☐	None
140	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
150	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
160	100 keV threshold loading with FEE veto mask disable except for parts 1+2+3+4+5+6	0	01		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m1234560_0001.TPF**	☐	None
170	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
180	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
190	100 keV threshold loading with FEE veto mask disable except for parts 1+2+3+4+5+6+7	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m1234567_0001.TPF**	☐	None
200	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE

LEOP SPI-090 : SPI Phase II.4

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
210	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
220	100 keV threshold loading with FEE veto mask disable except for parts 2+3+4+5+6+7	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m0234567_0001.TPF**	☐	None
230	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
240	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
250	100 keV threshold loading with FEE veto mask disable except for parts 3+4+5+6+7	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m0034567_0001.TPF**	☐	None
260	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
270	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
280	100 keV threshold loading with FEE veto mask disable except for parts 4+5+6+7	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m0004567_0001.TPF**	☐	None
290	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
300	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
310	100 keV threshold loading with FEE veto mask disable except for parts 5+6+7	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m0000567_0001.TPF**	☐	None
320	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
330	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
340	100 keV threshold loading with FEE veto mask disable except for parts 6+7	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m0000067_0001.TPF**	☐	None

LEOP SPI-090 : SPI Phase II.4

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
350	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
360	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
370	100 keV threshold loading with FEE veto mask disable except for part 7	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m0000007_0001.TPF**	☐	None
380	Transition to Operational Photon/Photon mode	0	10		FCP_SPI1_0130	☑	IOSM tool on ACS EGSE at MOC DFEE EGSE
390	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
400	Restore DFEE nominal flight configuration	0	05		FCP_SPI1_0170 **Use: ES1720_DF-SWPAR_fmconfig_0001.TPF** **Use: ES1721_DF-CLPAR_fmconfig_0002.TPF** **Use: ES1722_DF-AFADJ_fmconfig_0003.TPF**	☐	None
410	Restore ACS nominal flight configuration	0	15		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_fmconfig_0001.TPF** **Use: ES1731_AS-IS-ED_fmconfig_0001.TPF** **Use: ES1732_AS-SERVS_fmconfig_0001.TPF** **Use: ES1733_AS-VTCNF_fmconfig_0002.TPF** **Use: ES1734_AS-RT-MT_fmconfig_0001.TPF** **Use: ES1735_AS-VTDLY_fmconfig_0001.TPF** **Use: ES1736_AS-EVTGR_fmconfig_0001.TPF** **Use: ES1737_AS-ENDSC_fmconfig_0002.TPF** **Use: ES1738_AS-HVSET_fmconfig_0002.TPF**	☐	None
420	Wait go-ahead from SPI Team before proceeding with the next actifity. SPI Team should check if all the required data acquisition were successfully received.	0	10		Commissioning TL	☐	None
	Total Duration :	5	30				

LEOP SPI - 100

Title: Active Cooling

Description (Purpose): The activity starts the active cooling of the instrument detector plate using the nominal 4 cryocoolers configuration.

Initial Configuration:
- SPI IASW and S/A in Configuration Mode
- S/A nominal Flight configuration, except for AFEE (GeD HV off)

Constraints:
- To be executed after SPI-060 (Passive Cooling)
- The compressor and thermal braids start-up temperatures achieved (<35degC)
- SPI PST Allocation >/= 3 pkt/8s

Special Pointing Requirements: None

Success Criteria:
- 4 cryocoolers successfully started and configured for Master/Slave ops
- Final cold plate temperature of 90degK achieved within 8 days

Inputs: None

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-100 : SPI Phase II.5

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
1	SPI Team to provide go-ahead to start the cryocoolers	0	05		Commissioning TL	☐	None
10	Transition from Configuration to Cooling mode	1	30		FCP_SPI1_0070	☐	None
20	Monitor the temperature decrease using the following TM : - Cold plate temperatures: E0391, E0392, E0393, E0394 When any of these TM is <125degK, then send the TC to change the acquisition range of these TM on-board the AFEE	0	00		FCP_SPI1_0070	☐	None
30	It takes about 8 days to achieve the 90degK cold plate temperature.	192	00		Commissioning TL	☐	None
	Total Duration :	193	35				

LEOP SPI - 110

Title: PSD thresholds adjustment

Description (Purpose): In this activity, various energy thresholds will be loaded on the PSD and the count rates of the PSD channels will characterised with the PSD in Configuration Mode.
Each threshold is verified in two steps:
- the first step is spent in CONF mode for 5 min
- the second step is spent in OPER mode for 5 min.

This allows to check the impact of the deadtime due to (random) Veto signals since Veto signals are NOT taken into account by the PSD in CONF mode.
In addition, the DFEE - PSD link is verified by this method.

Initial Configuration:
- SPI IASW and S/A in Configuration Mode
- S/A nominal Flight configuration, except for AFEE (GeD HV off)

Constraints:
- To be executed in parallel to SPI-100 (Active cooling) and before to reach 117degK on the cold-plate: It should be done at the beginning of the active cooling as soon as the PA2 temperatures are stabilsed
- PA2 temperatures stabilised
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 3 pkt/8s

Special Pointing Requirements: None

Success Criteria:
- Succesful verification of the count rates on PSD

Inputs:
ES1740_PD-DETED_lld4fet4_0001.TPF
ES1740_PD-DETED_lld3fet4_0001.TPF
ES1740_PD-DETED_lld2fet4_0001.TPF
ES1740_PD-DETED_lld1fet4_0001.TPF
ES1740_PD-DETED_lld0fet4_0001.TPF
ES1740_PD-DETED_lld4fet5_0001.TPF
ES1740_PD-DETED_lld3fet5_0001.TPF
ES1740_PD-DETED_lld2fet5_0001.TPF
ES1740_PD-DETED_lld1fet5_0001.TPF
ES1740_PD-DETED_lld0fet5_0001.TPF
ES1740_PD-DETED_lld4fet6_0001.TPF
ES1740_PD-DETED_lld3fet6_0001.TPF
ES1740_PD-DETED_lld2fet6_0001.TPF
ES1740_PD-DETED_lld1fet6_0001.TPF
ES1740_PD-DETED_lld0fet6_0001.TPF
ES1740_PD-DETED_fmconfig_0001.TPF

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-110 : SPI Phase II.6

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
1	Check that GeD HV are off	0	02		Commissioning TL	☐	None
10	Load PSD threshold FET=4 LLD=4 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld4fet4_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
12	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
14	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
20	Load PSD threshold FET=4 LLD=3 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld3fet4_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
22	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
24	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
30	Load PSD threshold FET=4 LLD=2 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld2fet4_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
32	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
34	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
40	Load PSD threshold FET=4 LLD=1 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld1fet4_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
42	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
44	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None

LEOP SPI-110 : SPI Phase II.6

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
50	Load PSD threshold FET=4 LLD=0 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld0fet4_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
52	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
54	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
60	Load PSD threshold FET=5 LLD=4 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld4fet5_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
62	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
64	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
70	Load PSD threshold FET=5 LLD=3 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld3fet5_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
72	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
74	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
80	Load PSD threshold FET=5 LLD=2 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld2fet5_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
82	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
84	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None

LEOP SPI-110 : SPI Phase II.6

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
90	Load PSD threshold FET=5 LLD=1 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld1fet5_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
92	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
94	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
100	Load PSD threshold FET=5 LLD=0 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld0fet5_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
102	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
104	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
110	Load PSD threshold FET=6 LLD=4 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld4fet6_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
112	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
114	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
120	Load PSD threshold FET=6 LLD=3 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld3fet6_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
122	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
124	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None

LEOP SPI-110 : SPI Phase II.6

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
130	Load PSD threshold FET=6 LLD=2 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld2fet6_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
132	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
134	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
140	Load PSD threshold FET=6 LLD=1 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld1fet6_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
142	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
144	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
150	Load PSD threshold FET=6 LLD=0 and wait 5 min to check the PSD channel counting rates and LLD rates	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld0fet6_0001.TPF**	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
152	Transition to Operational mode and wait 5 min	0	05		FCP_SPI1_0130	☑	PSD tools on PI W/S at MOC and/or CNES EGSE
154	Back to Configuration Mode	0	01		FCP_SPI1_0160	☐	None
160	If necessary SPI Team will update the next TPF (15 min allocated)	0	15		Commissioning TL	☐	None
170	Load the nominal flight configuration for PSD	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_fmconfig_0001.TPF**	☐	None
	Total Duration :	3	04				

CP SPI - 200

Title: Camera switch ON at 117 K

Description (Purpose): In this activity the GeD (detector) High Voltages are switched on for the first time in flight.

The voltage is increased by steps of 500V up to the value of 4000V, checking the DC output voltage at increased sampling rate (TM packets are requested by ground command every ~2 sec).
After 2000V, each step is followed by an acquisition period of 2 hr in Operational Mode.

The camera health status is first evaluated, including a first estimation of the needed TM rate (ACS is not yet finely tuned).

At the end of the activity the instrument is left in Operational Mode, until the next activity.

NOTE1: At each step SPI Team will analyse the health of of the detector and will provide go-ahead to MOC FCT for the execution of the next step.

Initial Configuration:
- SPI IASW and S/A in Configuration Mode
- S/A nominal Flight configuration, except for AFEE (GeD HV off)
- IASW Cold plate temperature monotoring capability shall be set "enable".
- AFEE Temperature range must be in narrow range (E0209=1)
- IASW Thresholds (E3964 to E3967) in accordance with GeD temperatures (5degK over the corresponding cold plate temperature parameter (E0391 to E0394)

Constraints:
- To be executed after SPI-100 (Active Cooling)
- Cold plate temperatures (E0391 E0392 E0393 E0394) at 117 K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 46 pkt/8s

Special Pointing Requirements: None

Success Criteria:
- Succesful GeD HV switch-on and initial health check

Inputs:
ES1713_AF-HVSET_def-grnd_0001.TPF
ES1710_AF-CH-OO_fmconfig_0001.TPF
ES1713_AF-HVSET_0500volt_0001.TPF
ES1713_AF-HVSET_1000volt_0001.TPF
ES1713_AF-HVSET_1500volt_0001.TPF
ES1713_AF-HVSET_2000volt_0001.TPF
ES1713_AF-HVSET_2500volt_0001.TPF
ES1713_AF-HVSET_3000volt_0001.TPF
ES1713_AF-HVSET_3500volt_0001.TPF
ES1713_AF-HVSET_fmconfig_0002.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-200 : Phase III.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
1	SPI team to check the AFEE analog chain LCL current	0	01		Commissioning TL	☐	None
10	Set AFEE HV at 0 Volts (E5010 to 5028 = 0 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_def-grnd_0001.TPF**	☐	None
20	Load AFEE nominal flight configuration for chain on/off status	0	02		FCP_SPI1_0170 **Use: ES1710_AF-CH-OO_fmconfig_0001.TPF**	☐	None
40	HV ckeck by sending On Request TC E0021	0	02		Commissioning TL	☐	None
50	SPI Team to check the AFEE analog chain LCL current increasing	0	01		Commissioning TL	☐	None
60	Set AFEE HV at 500 Volts (E5010 to E5028 = 500 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_0500volt_0001.TPF**	☐	None
70	DC output voltage check by sending On Request TC E0026 as many time as necessary	0	10		TBD	☐	Dedicated display
80	HV check by sending On Request TC E0021	0	02		Commissioning TL	☐	None
90	Set AFEE HV at 1000 Volts (E5010 to E5028 = 1000 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_1000volt_0001.TPF**	☐	None
100	DC output voltage check by sending On Request TC E0026 as many time as necessary	0	10		TBD	☐	Dedicated display
110	HV check by sending On Request TC E0021	0	02		Commissioning TL	☐	None
120	Set AFEE HV at 1500 Volts (E5010 to E5028 = 1500 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_1500volt_0001.TPF**	☐	None
130	DC output voltage check by sending On Request TC E0026 as many time as necessary	0	10		TBD	☐	Dedicated display
140	HV check by sending On Request TC E0021	0	02		Commissioning TL	☐	None
150	Set AFEE HV at 2000 Volts (E5010 to E5028 = 2000 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_2000volt_0001.TPF**	☐	None
160	DC output voltage check by sending On Request TC E0026 as many time as necessary	0	10		TBD	☐	Dedicated display
170	HV check by sending On Request TC E0021	0	02		Commissioning TL	☐	None
180	Transition to Photon/Photon mode	2	00		FCP_SPI1_0130	☑	CESR WS - AFEE TT counting rates check

CP SPI-200 : Phase III.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
190	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
200	Set AFEE HV at 2500 Volts (E5010 to E5028 = 2500 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_2500volt_0001.TPF**	☐	None
210	DC output voltage check by sending On Request TC E0026 as many time as necessary	0	10		TBD	☐	Dedicated display
220	HV check by sending On Request TC E0021	0	02		Commissioning TL	☐	None
230	Transition to Photon/Photon mode	2	00		FCP_SPI1_0130	☑	CESR WS - AFEE TT counting rates check
240	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
250	Set AFEE HV at 3000 Volts (E5010 to E5028 = 3000 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_3000volt_0001.TPF**	☐	None
260	DC output voltage check by sending On Request TC E0026 as many time as necessary	0	10		TBD	☐	Dedicated display
270	HV check by sending On Request TC E0021	0	02		Commissioning TL	☐	None
280	Transition to Photon/Photon mode	2	00		FCP_SPI1_0130	☑	CESR WS - AFEE TT counting rates check
290	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
300	Set AFEE HV at 3500 Volts (E5010 to E5028 = 3500 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_3500volt_0001.TPF**	☐	None
310	DC output voltage check by sending On Request TC E0026 as many time as necessary	0	10		TBD	☐	Dedicated display
320	HV check by sending On Request TC E0021	0	02		Commissioning TL	☐	None
330	Transition to Photon/Photon mode	2	00		FCP_SPI1_0130	☑	CESR WS - AFEE TT counting rates check
340	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
350	Set AFEE HV at 4000 Volts (E5010 to E5028 = 4000 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_fmconfig_0002.TPF**	☐	None
360	DC output voltage check by sending On Request TC E0026 as many time as necessary	0	10		TBD	☐	Dedicated display
370	HV check by sending On Request TC E0021	0	02		Commissioning TL	☐	None

CP SPI-200 : Phase III.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
380	Transition to Photon/Photon mode	2	00		FCP_SPI1_0130	☑	CESR WS - AFEE TT counting rates check
	Total Duration :	12	04				

CP SPI - 201

Title: Pure PSD Events Analysis

Description (Purpose): The purpose is to generate pure PSD events in order to evaluate the expected proportion of false PSD triggers.

If the false trigger rate is too high, a change of the front-end threshold configuration may be requested in order to reduce the false trigger rate.

Initial Configuration:
- SPI IASW and S/As in photon mode
- S/A nominal flight configuration (GeD HV on)

Constraints:
- To be executed after activity SPI-200
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 46 pkt/8s

Special Pointing Requirements: None

Success Criteria:
- Pure PSD events generated and received on-ground
- False trigger rate below TBD

Inputs: ES1721_DF-CLPAR_keep--pp_0001.TPF
ES1721_DF-CLPAR_fmconfig_0002.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-201 : Phase III.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
20	Load DFEE configuration in order to have the pure PSD event in the science telemetry	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_keep--pp_0001.TPF**	☐	None
30	Transition to Operational Photon/Photon mode	0	15		FCP_SPI1_0130	☑	PSD tools on PI WS at MOC
40	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
50	Restore DFEE nominal flight configuration	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_fmconfig_0002.TPF**	☐	None
60	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
	Total Duration :	0	24				

LEOP SPI - 202

Title: Spectra Check in the Dithering Sequence

Description (Purpose): In this activity the dithering sequence is simulated in order to download and check the spectra accumulated.

The sequence will consist of 6 x 27min + 15min in Operational to download the last spectra.

The instrument is left in Operational Mode at the end.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- Spectra accumulation=27min

Constraints:
- To be executed after SPI-201 (GeD HV switch on)
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 46 pkt/8s

Special Pointing Requirements: S/C stable pointing with OTF=1

Success Criteria: - Succesful Spectra check in dithering sequence

Inputs: None

Involved Teams: MOC FCT; SPI Team at MOC

LEOP SPI-202 : SPI Phase III.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
1	- Check SPI is in Operational Mode - Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current NOTE: This is the starting condition of the ditering sequence To be executed using the second part of FCP_SPI1_0131	0	02		FCP_SPI1_0131	☐	None

LEOP SPI-202 : SPI Phase III.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Pointing#1 start: - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current - Wait 30 min & go-ahead from SPI Team Pointing#1 end: - Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0s, Pnt_nr=0, Rev_nr=current - Wait 3 mim	0	36		FCP_SPI1_0131	☑	SPI W/S at MOC
20	Pointing#2 start: - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K+1, Rev_nr=current - Wait 30 min & go-ahead from SPI Team Pointing#2 end: - Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0s, Pnt_nr=0, Rev_nr=current - Wait 3 min	0	36		FCP_SPI1_0131	☑	SPI W/S at MOC
30	Pointing#3 start: - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K+2, Rev_nr=current - Wait 30 min & go-ahead from SPI Team Pointing#3 end: - Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0s, Pnt_nr=0, Rev_nr=current - Wait 3 min	0	36		FCP_SPI1_0131	☑	SPI W/S at MOC
40	Pointing#4 start: - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K+3, Rev_nr=current - Wait 30 min & go-ahead from SPI Team Pointing#4 end: - Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0s, Pnt_nr=0, Rev_nr=current - Wait 3 min	0	36		FCP_SPI1_0131	☑	SPI W/S at MOC

LEOP SPI-202 : SPI Phase III.1

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
50	Pointing#5 start: - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K+4, Rev_nr=current - Wait 30 min & go-ahead from SPI Team Pointing#5 end: - Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0s, Pnt_nr=0, Rev_nr=current - Wait 3 min	0	36		FCP_SPI1_0131	☑	SPI W/S at MOC
60	Pointing#6 start: - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K+5, Rev_nr=current - Wait 30 min & go-ahead from SPI Team Pointing#6 end: - Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0s, Pnt_nr=0, Rev_nr=current	0	33		FCP_SPI1_0131	☑	SPI W/S at MOC
130	Before continuing with the next activity, wait End of Spectra Transmission OEM and go-ahead from SPI Team	0	15		Commissioning TL	☐	None
	Total Duration :	3	50				

CP SPI - 210

Title: Instrument Health Status Main Check

Description (Purpose): In this activity, after the GeD HV switch on and during the cold plate temperature decrease (117 K to 90 K), the SPI health status in the different modes, not tested previously, is thorougly checked.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal flight configuration

Constraints:
- To be executed after SPI-200 (GeD HV Switch-on) while the temperature is decreasing from 117K to 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation : availability of 2 hr periods up to 129 pkt/8s

Special Pointing Requirements: S/C stable pointing with OTF=1

Success Criteria:
- Succesful SPI health check in the various modes

Inputs:
- TPF files:
ES1700_IASW-PAR_spac8min_0001.TPF
ES1721_DF-CLPAR_tm-emgcy_0001.TPF
ES1721_DF-CLPAR_fmconfig_0002.TPF
ES1700_IASW-PAR_fmconfig_0001.TPF
ES1750_DIAG-PAR_diag_acs_0001.TPF
ES1750_DIAG-PAR_diagdfee_0001.TPF
ES1750_DIAG-PAR_diag_psd_0001.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-210 : Phase III.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
1	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
10	Set Spectra accumulation = 8 min (IASW exposure parameter)	0	02		FCP_SPI1_0170 **Use: ES1700_IASW-PAR_spac8min_0001.TPF**	☐	None
20	TM Emergency mode with on-board spectra (set the constituent of spectra in the DFEE E7782=2, I.e. single events not vetoed only)	0	05		FCP_SPI1_0135 **Use: ES1721_DF-CLPAR_tm-emgcy_0001.TPF**	☐	None

CP SPI-210 : Phase III.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
30	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None
40	Acquisition of 30 min in TM emergency mode - Wait go-ahead from SPI Team	0	30		Commissioning TL	☑	SPI W/S at MOC
50	Back to Configuration mode after receiving the last OEM End Spectra Transmission	0	01		FCP_SPI1_0160	☐	None
60	Load the DFEE nominal flight configuration to set the constituent of spectra in the DFEE E7782=1, I.e. vetoed only	0	02		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_fmconfig_0002.TPF**	☐	None
70	Set Spectra accumulation = 27 min	0	02		FCP_SPI1_0170 **Use: ES1700_IASW-PAR_fmconfig_0001.TPF**	☐	None
80	Set SPI PST Allocation >/= 58 pkt/8s	0	02		FCP_DHS_1413 **Use: DEPST200_E58…… TPF**	☐	None
90	Load Diagnostic configuration parameters for ACS	0	03		FCP_SPI1_0170 **Use: ES1750_DIAG-PAR_diag_acs_0001.TPF**	☐	None
100	Transition to Diagnostic mode Wait ~1hr and 5m and go-ahead from SPI Team for Spectra acquisition and downlink	1	05		TBD	☑	SPI W/S at MOC
110	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
120	Load Diagnostic configuration parameters for DFEE	0	03		FCP_SPI1_0170 **Use: ES1750_DIAG-PAR_diagdfee_0001.TPF**	☐	None
130	Transition to Diagnostic mode Wait ~1hr and 5m and go-ahead from SPI Team for Spectra acquisition and downlink	1	05		TBD	☑	SPI W/S at MOC
140	Back to Configuration mode after receiving the OEM End Spectra Transmission	0	01		FCP_SPI1_0160	☐	None
150	Set SPI PST Allocation >/= 129 pkt/8s	0	02		FCP_DHS_1413 **Use: DEPST200_. . . .TPF**	☐	None
160	Load Diagnostic configuration parameters for PSD	0	03		FCP_SPI1_0170 **Use: ES1750_DIAG-PAR_diag_psd_0001.TPF**	☐	None

CP SPI-210 : Phase III.2

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
170	Transition to Diagnostic mode Wait ~1hr and 5m and go-ahead from SPI Team for Spectra acquisition and downlink	1	05		TBD	☑	SPI W/S at MOC
180	Back to Configuration mode after receiving the OEM End Spectra Transmission	0	01		FCP_SPI1_0160	☐	None
190	Set SPI PST Allocation >/= 80 pkt/8s	0	02		FCP_DHS_1413 **Use: DEPST200_E80. . . . . TPF**	☐	None
200	Transition to PSD calibration mode Wait ~1hr and 1/2 and go-ahead from SPI Team	1	30		TBD	☑	SPI W/S at MOC
210	Back to Configuration mode	0	00		FCP_SPI1_0160	☐	None
	Total Duration :	5	50				

CP SPI - 220

Title: Camera performances checking during the cooling until 90 K

Description (Purpose): Acquisition in Operational mode until the cold temperature equilibrium is reached at 90K.

The cooling from 117K to 90K may take up to 3 days during which the activities SPI-200, 201, 202 and 210 are executed. At the end of these activities the instrument should be commanded to operational mode. This is performed by executing this activity.

The goal is to observe the influence of the cold plate temperature on the camera performances. Spectra accumulation and downlink is required.

Initial Configuration:
- SPI IASW and S/A in Configuration Mode
- S/A nominal Flight configuration
- Spectra accumulation = 27min

Constraints:
- To be executed after SPI-210 (Main Health Check) while the temperature is decreasing from 117K to 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s

Special Pointing Requirements: S/C stable pointing with OTF=1

Success Criteria:
- Succesful acquisition of PPM science for the period
- Verification of the nominal behaviour of the detector during cool down

Inputs: None

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-220 : Phase III.3

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
20	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None
30	SPI team to check the camera performances wrt cold plate temperature during the cooling period down to 90K	21	00		Commissioning TL	☑	SPI W/S at MOC
	Total Duration :	21	05				

CP SPI - 230

Title: Camera performances for various High voltages at 90 K

Description (Purpose): The goal of this activity is to analyse the camera performances wrt different High Voltage levels at 90 K, characterise the detector energy resolution, count rates, preliminarly assess the background dead time.

The GeD HV will be set at 1500, 2000, 2500, 3000, 3500, 4000, 4500 and finally at 5000V.

Each step is followed by an acquisition period of 2 hr in Operational Mode with Spectra Accumulation=27min

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- Spectra accumulation = 27min

Constraints:
- To be executed after SPI-220 (PPM during cool down) when the temperature is stable at 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s

Special Pointing Requirements: S/C stable pointing with OTF=1

Success Criteria: - Succesful characterisation of the detector at different GeD HV values at 90K

Inputs: - TPF files:
ES1713_AF-HVSET_0500volt_0001.TPF
ES1713_AF-HVSET_2000volt_0001.TPF
ES1713_AF-HVSET_2500volt_0001.TPF
ES1713_AF-HVSET_3000volt_0001.TPF
ES1713_AF-HVSET_3500volt_0001.TPF
ES1713_AF-HVSET_fmconfig_0002.TPF
ES1713_AF-HVSET_4500volt_0001.TPF
ES1713_AF-HVSET_5000volt_0001.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-230 : Phase III.4

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
20	Set AFEE HV at 1500 Volts (E5010 to E5028 = 1500 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_0500volt_0001.TPF**	☐	None
30	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-230 : Phase III.4

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
40	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None
50	Wait 2hr and then perform transition back to Configuration mode after receiving the 4th OEM End Spectra Transmission	2	15		FCP_SPI1_0160	☑	CESR WS Energy resolution count rates bkgrd assessment deadtime
60	Set AFEE HV at 2000 Volts (E5010 to E5028 = 2000 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_2000volt_0001.TPF**	☐	None
70	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
80	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None
90	Wait 2hr and then perform transition back to Configuration mode after receiving the 4th OEM End Spectra Transmission	2	15		FCP_SPI1_0160	☑	CESR WS Energy resolution count rates bkgrd assessment deadtime
100	Set AFEE HV at 2500 Volts (E5010 to E5028 = 2500 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_2500volt_0001.TPF**	☐	None
110	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
120	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None
130	Wait 2hr and then perform transition back to Configuration mode after receiving the 4th OEM End Spectra Transmission	2	15		FCP_SPI1_0160	☑	CESR WS Energy resolution count rates bkgrd assessment deadtime
140	Set AFEE HV at 3000 Volts (E5010 to E5028 = 3000 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_3000volt_0001.TPF**	☐	None
150	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-230 : Phase III.4

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
160	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None
170	Wait 2hr and then perform transition back to Configuration mode after receiving the 4th OEM End Spectra Transmission	2	15		FCP_SPI1_0160	☑	CESR WS Energy resolution count rates bkgrd assessment deadtime
180	Set AFEE HV at 3500 Volts (E5010 to E5028 = 3500 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_3500volt_0001.TPF**	☐	None
190	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
200	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None
210	Wait 2hr and then perform transition back to Configuration mode after receiving the 4th OEM End Spectra Transmission	2	15		FCP_SPI1_0160	☑	CESR WS Energy resolution count rates bkgrd assessment deadtime
220	Set AFEE HV at 4000 Volts (E5010 to E5028 = 4000 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_fmconfig_0002.TPF**	☐	None
230	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
240	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None
250	Wait 2hr and then perform transition back to Configuration mode after receiving the 4th OEM End Spectra Transmission	2	15		FCP_SPI1_0160	☑	CESR WS Energy resolution count rates bkgrd assessment deadtime
260	Set AFEE HV at 4500 Volts (E5010 to E5028 = 4500 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_4500volt_0001.TPF**	☐	None
270	DC output voltage check by sending On Request TC E0026 as many time as necessary	0	10		TBD	☐	Dedicated display

CP SPI-230 : Phase III.4

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
280	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
290	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None
300	Wait 2hr and then perform transition back to Configuration mode after receiving the 4th OEM End Spectra Transmission	2	15		FCP_SPI1_0160	☑	CESR WS Energy resolution count rates bkgrd assessment deadtime
310	Set AFEE HV at 5000 Volts (E5010 to E5028 = 5000 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_5000volt_0001.TPF**	☐	None
320	DC output voltage check by sending On Request TC E0026 as many time as necessary	0	10		TBD	☐	Dedicated display
330	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
340	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None
350	Wait 2hr and then perform transition back to Configuration mode after receiving the 4th OEM End Spectra Transmission	2	15		FCP_SPI1_0160	☑	CESR WS Energy resolution count rates bkgrd assessment deadtime
360	Set AFEE HV at 4000 Volts (E5010 to E5028 = 4000 Volts)	0	02		FCP_SPI1_0170 **Use: ES1713_AF-HVSET_fmconfig_0002.TPF**	☐	None
370	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
	Total Duration :	19	20				

CP SPI - 240

Title: Influence of High Energy clamping of preamplifiers

Description (Purpose): The goal of this activity is to analyse the influence of the High Energy clamping of preamplifiers and check the energy resolution.

The activity consist of setting the clamping parameters of the 19 detectors at OFF and acquiring for 2 hr in Operational Mode with Spectra Accumulation = 27min.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- Spectra accumulation = 27min

Constraints:
- To be executed after SPI-230 (Performances at 90K)
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s

Special Pointing Requirements: S/C stable pointing with OTF=1

Success Criteria: - Succesful characterisation of the PA High Energy clamping and check of the energy resolution.

Inputs:
- TPF files:
ES1712_AF-CHPAR_clampoff_0001.TPF
ES1712_AF-CHPAR_fmconfig_0001.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-240 : Phase III.5

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
20	Set at 1 (OFF) the AFEE parameters E5050 to E5068	0	03		FCP_SPI1_0170 **Use: ES1712_AF-CHPAR_clampoff_0001.TPF**	☐	None
30	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
40	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	04		FCP_SPI1_0131	☐	None

CP SPI-240 : Phase III.5

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
50	Wait 2hr and then perform transition back to Configuration mode after receiving the 4th OEM End Spectra Transmission	2	15		FCP_SPI1_0160	☑	CESR WS energy resolution checking
60	Restore AFEE nominal flight configuration	0	03		FCP_SPI1_0170 **Use: ES1712_AF-CHPAR_fmconfig_0001.TPF**	☐	None
70	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
	Total Duration :	2	28				

CP SPI - 250

Title: PSD thresholds and AFEE energy thresholds calibration

Description (Purpose): The purpose of this activity is to perform a few acquisitions lasting minimum 15min in Operational Mode with different AFEE and PSD energy thresholds:

- AFEE: 15, 20, 30, 40 keV

- PSD: FET=5 or 6 depending on the result of SPI-110, LLD=0, 2, 4, 7

The final objective is to adjust these energy thresholds

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration

Constraints:
- To be executed after SPI-240
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 80 pkt/8s

Special Pointing Requirements: None

Success Criteria: - Succesful calibration of the energy thresholds for PSD and AFEE

Inputs: - TPF files:
ES1711_AF-LW-DT_0015-kev_0001.TPF
ES1740_PD-DETED_lld0fet5_0001.TPF
ES1740_PD-DETED_lld0fet6_0001.TPF
ES1711_AF-LW-DT_fmconfig_0001.TPF
ES1740_PD-DETED_lld2fet5_0001.TPF
ES1740_PD-DETED_lld2fet6_0001.TPF
ES1711_AF-LW-DT_0030-kev_0001.TPF
ES1740_PD-DETED_lld4fet5_0001.TPF
ES1740_PD-DETED_lld4fet6_0001.TPF
ES1711_AF-LW-DT_0040-kev_0001.TPF
ES1740_PD-DETED_lld7fet5_0001.TPF
ES1740_PD-DETED_lld7fet6_0001.TPF
ES1740_PD-DETED_fmconfig_0001.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-250 : Phase III.6

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to Configuration	0	01		FCP_SPI1_0160	☐	None
20	Set AFEE energy thresholds E5030 to E5048 = 15 keV	0	02		FCP_SPI1_0170 **Use: ES1711_AF-LW-DT_0015-kev_0001.TPF**	☐	None
30	Set PSD thresholds : FET=5 or 6, LLD=0	0	03		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld0fet5_0001.TPF or ES1740_PD-DETED_lld0fet6_0001.TPF**	☐	None
40	Transition to Photon/Photon mode	0	15		FCP_SPI1_0130	☑	CESR WS
50	Back to Configuration	0	01		FCP_SPI1_0160	☐	None
60	Set AFEE energy thresholds E5030 to E5048 = 20 keV	0	02		FCP_SPI1_0170 **Use: ES1711_AF-LW-DT_fmconfig_0001.TPF**	☐	None
70	Set PSD thresholds: FET=5 or 6, LLD=2	0	03		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld2fet5_0001.TPF or ES1740_PD-DETED_lld2fet6_0001.TPF**	☐	None
80	Transition to Photon/Photon mode	0	15		FCP_SPI1_0130	☑	CESR WS
90	Back to Configuration	0	01		FCP_SPI1_0160	☐	None
100	Set AFEE energy thresholds E5030 to E5048 = 30 keV	0	02		FCP_SPI1_0170 **Use: ES1711_AF-LW-DT_0030-kev_0001.TPF**	☐	None
110	Set PSD thresholds: FET=5 or 6, LLD=4	0	03		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld4fet5_0001.TPF or ES1740_PD-DETED_lld4fet6_0001.TPF**	☐	None
120	Transition to Photon/Photon mode	0	15		FCP_SPI1_0130	☑	CESR WS
130	Back to Configuration	0	01		FCP_SPI1_0160	☐	None
140	Set AFEE energy thresholds E5030 to E5048 = 40 keV	0	02		FCP_SPI1_0170 **Use: ES1711_AF-LW-DT_0040-kev_0001.TPF**	☐	None
150	Set PSD thresholds: FET=5 or 6, LLD=7	0	03		FCP_SPI1_0170 **Use: ES1740_PD-DETED_lld7fet5_0001.TPF or ES1740_PD-DETED_lld7fet6_0001.TPF**	☐	None
160	Transition to Photon/Photon mode	0	15		FCP_SPI1_0130	☑	CESR WS
170	Back to Configuration	0	01		FCP_SPI1_0160	☐	None
180	Restore AFEE nominal flight configuration	0	02		FCP_SPI1_0170 **Use: ES1711_AF-LW-DT_fmconfig_0001.TPF**	☐	None
190	Restore PSD nominal flight configuration	0	05		FCP_SPI1_0170 **Use: ES1740_PD-DETED_fmconfig_0001.TPF**	☐	None
200	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-250 : Phase III.6

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
	Total Duration :	1	33				

CP SPI - 260

Title: GeD High Voltages + (AFEE, PSD) thresholds update and check

Description (Purpose): Using the results of the previous measurements (activity 230 to 250), the optimal configuration can be determined.
The fmconfig TPF files are updated at the beginning of this activity (the old ones are moved to OLD directory).
This configuration is loaded and the effects checked after at least 2 hr acquisition in Operational mode with Spectra accumulation = 27 min, while executing a dithering pattern on a known source.

If necessary, the configuration will be changed a second time to select the best one. To do that, the fmconfig TPF files are updated again (the old ones are moved to OLD directory).

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- Spectra accumulation = 27min
- GeD HV = 4000V

Constraints:
- To be executed after SPI-250
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s

Special Pointing Requirements: Hexagonal Dithering pattern centered on Cygnus-X1

Success Criteria: - Succesful achievement of the optimal PSD and AFEE energy thresholds

Inputs:
- Output of activities from 230 to 250
-TPF files:
ES1711_AF-LW-DT_fmconfig_00xx.TPF
ES1740_PD-DETED_fmconfig_00xx.TPF
ES1711_AF-LW-DT_fmconfig_00yy.TPF
ES1740_PD-DETED_fmconfig_00yy.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-260 : Phase III.7

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
20	Set the AFEE requested energy thresholds	0	02		FCP_SPI1_0170 **Use: ES1711_AF-LW-DT_fmconfig_00xx.TPF**	☐	None

CP SPI-260 : Phase III.7

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
30	Set the PSD requested thresholds	0	02		FCP_SPI1_0170 **Use: ES1740_PD-DETED_fmconfig_00xx.TPF**	☐	None
40	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
50	Acquire data while perform the Hexagonal Dithering pattern centered on Cygnus-X1. Each pointing should last 30 min. NOTE: To be performed by Automatic Timeline driven by PREQs from POS	4	00		POS Rev#TBD	☐	None
60	Wait for the 6th OEM End of Spectra Transmission	0	00		Commissioning TL	☐	None
70	If necessary repeat steps from 10 to 60 using a different AFEE-PSD configuration	3	30		Commissioning TL **Use: ES1711_AF-LW-DT_fmconfig_00yy.TPF** **Use: ES1740_PD-DETED_fmconfig_00yy.TPF**	☐	None
	Total Duration :	11	06				

CP SPI - 270

Title: Internal SPI timing optimisation - PSD & AFEE TT aligment and multiple window size optimisation

Description (Purpose): The purpose of this activity is to check and set the alignment of the PSD and AFEE time tags in the DFEE and optimise the multiple window size.

The fmconfig TPF files are taken from directory FMCONFIG with the last revision (_00zz)

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- GeD HV = 4000V

Constraints:
- To be executed after SPI-260
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s

Special Pointing Requirements: None

Success Criteria: - Succesful achievement of the optimal PSD and AFEE TT alignment and multiple window size

Inputs:
ES1722_DF-AFADJ_timingpa_0001.TPF
ES1721_DF-CLPAR_timingpa_0002.TPF (if necessary)
ES1722_DF-AFADJ_fmconfig_00zz.TPF
ES1700_IASW-PAR_cordisab_0001.TPF
ES1721_DF-CLPAR_timingpa_0001.TPF
ES1722_DF-AFADJ_timingpa_0002.TPF (if necessary)
ES1700_IASW-PAR_fmconfig_0001.TPF
ES1721_DF-CLPAR_fmconfig_00zz.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-270 : Phase III.8

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
20	Set IASW configuration without PSD event correlation	0	02		FCP_SPI1_0170 **Use: ES1700_IASW-PAR_cordisab_0001.TPF**	☐	None
30	Set DFEE configuration for timing checks	0	03		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_timingpa_0001.TPF** **Use: ES1721_DF-CLPAR_timingpa_0001.TPF**	☐	None

CP SPI-270 : Phase III.8

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
40	Transition to Photon/Photon mode	2	00		FCP_SPI1_0130	☑	CEA W/S at MOC
50	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
60	If necessary, update the DFEE configuration for timing checks and repeat steps 30, 40, 50	2	10		Commissioning TL **Use: ES1721_DF-CLPAR_timingpa_0002.TPF (if necessary)** **Use: ES1722_DF-AFADJ_timingpa_0002.TPF (if necessary)**	☑	CEA W/S at MOC
70	Set IASW nominal flight configuration	0	02		FCP_SPI1_0170 **Use: ES1700_IASW-PAR_fmconfig_0001.TPF**	☐	None
80	Set DFEE nominal flight configuration	0	03		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_fmconfig_00zz.TPF** **Use: ES1721_DF-CLPAR_fmconfig_00zz.TPF**	☐	None
90	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
	Total Duration :	6	39				

CP SPI - 274

Title: Internal SPI timing optimization - Veto pulse and AFEE TT alignment

Description (Purpose): The purpose of this activity is to check and set the alignment of the VETO pulse and AFEE time in the DFEE.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- GeD HV = 4000V

Constraints:
- To be executed after SPI-270
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 85 pkt/8s

Special Pointing Requirements: None

Success Criteria: - Succesful achievement of the optimal VETO pulse and AFEE TT alignment

Inputs: - TPF files:
ES1722_DF-AFADJ_tixtthr0_0001.TPF
ES1722_DF-AFADJ_tixt5000_0001.TPF
ES1700_IASW-PAR_cordisab_0001.TPF
ES1721_DF-CLPAR_timingva_0001.TPF
ES1722_DF-AFADJ_timingva_0001.TPF
ES1700_IASW-PAR_fmconfig_0001.TPF
ES1721_DF-CLPAR_fmconfig_00zz.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-274 : Phase III.8

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
15	Change DFEE configuration to extend all veto as over-range signal (E7842=0)	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_tixtthr0_0001.TPF**	☐	None
20	Transition to Photon/Photon mode	0	10		FCP_SPI1_0130	☑	CEA W/S at MOC
30	Check if count veto gate (E3307) < 27000. If YES go to step 80, else continue	0	05		Commissioning TL	☐	None
40	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None

CP SPI-274 : Phase III.8

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
50	Increase the xntgatebellow (E7844= old + 5000 (TBC))	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_tixt5000_0001.TPF**	☐	None
60	Transition to Photon/Photon mode	0	10		FCP_SPI1_0130	☑	CEA W/S at MOC
70	return to step 30	0	00		Commissioning TL	☐	None
80	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
90	set IASW in configuration without PSD event correlation	0	02		FCP_SPI1_0170 **Use: ES1700_IASW-PAR_cordisab_0001.TPF**	☐	None
100	set DFEE configuration for timing veto/AFEE	0	02		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_timingva_0001.TPF** **Use: ES1722_DF-AFADJ_timingva_0001.TPF**	☐	None
110	Transition to Photon/Photon mode	2	00		FCP_SPI1_0130	☑	CEA W/S at MOC
120	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
130	Restore the IASW nominal configuration	0	02		FCP_SPI1_0170 **Use: ES1700_IASW-PAR_fmconfig_0001.TPF**	☐	None
140	Restore the DFEE nominal configuration	0	02		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_fmconfig_00zz.TPF** **Use: ES1722_DF-AFADJ_fmconfig_00zz.TPF**	☐	None
150	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
	Total Duration :	2	46				

CP SPI - 278

Title: Internal SPI timing optimization - Veto pulse sent to PSD alignment

Description (Purpose): The purpose of this activity is to set and check the alignment of the VETO pulse sent to PSD.

The veto delays will be set according to the following table:

1- veto1st=3 / veto2nd=26
2- veto1st=4 / veto2nd=25
3- veto1st=5 / veto2nd=24
4- veto1st=6 / veto2nd=23
5- veto1st=7 / veto2nd=22
6- veto1st=8 / veto2nd=21
7- veto1st=9 / veto2nd=20
8- veto1st=10 / veto2nd=19
9- veto1st=11 / veto2nd=18
10- veto1st=12 / veto2nd=17
11- veto1st=13 / veto2nd=16

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- GeD HV = 4000V

Constraints:
- To be executed after SPI-274
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s (TBC)

Special Pointing Requirements: None

Success Criteria: - Succesful achievement of the optimal alignment of the VETO pulse to PSD

Inputs: - TPF files:
ES1721_DF-CLPAR_tivp0326_0001.TPF
ES1721_DF-CLPAR_tivp0425_0001.TPF
ES1721_DF-CLPAR_tivp0524_0001.TPF
ES1721_DF-CLPAR_tivp0623_0001.TPF
ES1721_DF-CLPAR_tivp0722_0001.TPF
ES1721_DF-CLPAR_tivp0821_0001.TPF
ES1721_DF-CLPAR_tivp0920_0001.TPF
ES1721_DF-CLPAR_tivp1019_0001.TPF
ES1721_DF-CLPAR_tivp1118_0001.TPF

ES1721_DF-CLPAR_tivp1217_0001.TPF
ES1721_DF-CLPAR_tivp1316_0001.TPF
ES1721_DF-CLPAR_fmconfig_00zz.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-278 : Phase III.8

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
5	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
10	Set DFEE Configuration #1- veto1st=3 / veto2nd=26	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp0326_0001.TPF**	☐	None
20	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
30	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
40	Set DFEE Configuration #2- veto1st=4 / veto2nd=25	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp0425_0001.TPF**	☐	None
50	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
60	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
70	Set DFEE Configuration #3- veto1st=5 / veto2nd=24	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp0524_0001.TPF**	☐	None
80	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
90	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
100	Set DFEE Configuration #4- veto1st=6 / veto2nd=23	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp0623_0001.TPF**	☐	None
110	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
120	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
130	Set DFEE Configuration #5- veto1st=7 / veto2nd=22	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp0722_0001.TPF**	☐	None
140	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
150	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
160	Set DFEE Configuration #6- veto1st=8 / veto2nd=21	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp0821_0001.TPF**	☐	None
170	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
180	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
190	Set DFEE Configuration #7- veto1st=9 / veto2nd=20	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp0920_0001.TPF**	☐	None

CP SPI-278 : Phase III.8

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
200	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
210	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
220	Set DFEE Configuration #8- veto1st=10 / veto2nd=19	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp1019_0001.TPF**	☐	None
230	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
240	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
250	Set DFEE Configuration #9- veto1st=11 / veto2nd=18	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp1118_0001.TPF**	☐	None
260	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
270	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
280	Set DFEE Configuration #10- veto1st=12 / veto2nd=17	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp1217_0001.TPF**	☐	None
290	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
300	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
310	Set DFEE Configuration #11- veto1st=13 / veto2nd=16	0	03		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_tivp1316_0001.TPF**	☐	None
320	Transition to Operational mode	0	10		FCP_SPI1_0130	☑	SPI W/S at MOC
330	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
340	Set DFEE nominal flight configuration	0	02		FCP_SPI1_0170 **Use: ES1721_DF-CLPAR_fmconfig_00zz.TPF**	☐	None
350	Transition to Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
	Total Duration :	2	38				

CP SPI - 280

Title: First step of PSD calibration

Description (Purpose): The purpose of this activity is to perform the acquisition in Calibration Mode for a duration of 1 day, with the PSD configuration achieved since activity SPI-260.

After the acquisition, about 1 week is necessary for the data processing, in order to elaborate a new PSD library.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- GeD HV = 4000V

Constraints:
- To be executed after SPI-278
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 80 pkt/8s

Special Pointing Requirements: Empty field

Success Criteria: - Succesful collection of the PSD calibration data

Inputs: None (use of PSD fmconfig files updated in CP-SPI-260)

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-280 : Phase III.9

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to Configuration mode	0	01		FCP_SPI1_0160	☐	None
20	Transition to PSD calibration mode	24	00		FCP_SPI1_0140	☑	One week analysis needed
	Total Duration :	24	01				

CP SPI - 290

Title: Influence of ACS thresholds on the background

Description (Purpose): The purpose of this activity is to perform several acquisitions in Operational Mode 1 hr each, changing the ACS configuration as follows:

- ACS section 1 (LVS bottom) with 100, 150, 200 and 300keV as energy thresholds. ACS Section 2 to 6 with nominal thresholds of 100keV.

- Same measurements will be performed for the other ACS sections, by changing the thresholds on one section and maintaining the nominal setting on the other ones.

The final objective is to analyse the influence of the ACS thresholds on the background and determine the best configuration.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- Spectra accumulation = 27 min (triggered by IASW)
- GeD HV = 4000V

Constraints:
- To be executed after SPI-280
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s (TBC)

Special Pointing Requirements: stable pointing with OTF=1 for the entire duration, in order to have always the same portion of the sky in the FOV for data processing purposes of this activity

Success Criteria: - Succesful determination of the best ACS setting for the energy threshold w.r.t. the background

Inputs: - TPF files:
ES1737_AS-ENDSC_fmconfig_00zz.TPF
ES1737_AS-ENDSC_150kevp1_0001.TPF
ES1737_AS-ENDSC_200kevp1_0001.TPF
ES1737_AS-ENDSC_300kevp1_0001.TPF
ES1737_AS-ENDSC_150kevp2_0001.TPF
ES1737_AS-ENDSC_200kevp2_0001.TPF
ES1737_AS-ENDSC_300kevp2_0001.TPF
ES1737_AS-ENDSC_150kevp3_0001.TPF
ES1737_AS-ENDSC_200kevp3_0001.TPF
ES1737_AS-ENDSC_300kevp3_0001.TPF
ES1737_AS-ENDSC_150kevp4_0001.TPF
ES1737_AS-ENDSC_200kevp4_0001.TPF
ES1737_AS-ENDSC_300kevp4_0001.TPF
ES1737_AS-ENDSC_150kevp5_0001.TPF
ES1737_AS-ENDSC_200kevp5_0001.TPF

ES1737_AS-ENDSC_300kevp5_0001.TPF
ES1737_AS-ENDSC_150kevp6_0001.TPF
ES1737_AS-ENDSC_200kevp6_0001.TPF
ES1737_AS-ENDSC_300kevp6_0001.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-290 : Phase III.10

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
20	100 keV threshold loading with FEE veto mask	0	02		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_fmconfig_00zz.TPF**	☐	None
30	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
35	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
40	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
50	150 keV threshold loading for FEE of the part 1 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_150kevp1_0001.TPF**	☐	None
60	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
65	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
70	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
80	200 keV threshold loading for FEE of the part 1 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_200kevp1_0001.TPF**	☐	None
90	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-290 : Phase III.10

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
95	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
100	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
110	300 keV threshold loading with FEE veto mask disable except for part 1	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_300kevp1_0001.TPF**	☐	None
120	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
125	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
130	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
170	150 keV threshold loading for FEE of the part 2 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_150kevp2_0001.TPF**	☐	None
180	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
185	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
190	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
200	200 keV threshold loading for FEE of the part 2 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_200kevp2_0001.TPF**	☐	None
210	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-290 : Phase III.10

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
215	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
220	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
230	300 keV threshold loading for FEE of the part 2 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_300kevp2_0001.TPF**	☐	None
240	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
245	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
250	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
290	150 keV threshold loading for FEE of the part 3 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_150kevp3_0001.TPF**	☐	None
300	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
305	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
310	Back to configuration mode after at least one hour of acquisition when the seconf OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
320	200 keV threshold loading for FEE of the part 3 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_200kevp3_0001.TPF**	☐	None
330	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-290 : Phase III.10

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
335	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
340	Back to configuration mode after at least one hour of acquisition when the seconf OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
350	300 keV threshold loading for FEE of the part 3 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_300kevp3_0001.TPF**	☐	None
360	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
365	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
370	Back to configuration mode after at least one hour of acquisition when the seconf OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
410	150 keV threshold loading for FEE of the part 4 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_150kevp4_0001.TPF**	☐	None
420	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
425	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
430	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
440	200 keV threshold loading for FEE of the part 4 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_200kevp4_0001.TPF**	☐	None
450	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-290 : Phase III.10

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
455	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
460	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
470	300 keV threshold loading for FEE of the part 4 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_300kevp4_0001.TPF**	☐	None
480	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
485	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
490	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
530	150 keV threshold loading for FEE of the part 5 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_150kevp5_0001.TPF**	☐	None
540	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
545	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
550	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
560	200 keV threshold loading for FEE of the part 5 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_200kevp5_0001.TPF**	☐	None
570	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-290 : Phase III.10

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
575	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
580	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
590	300 keV threshold loading for FEE of the part 5 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_300kevp5_0001.TPF**	☐	None
600	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
605	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
610	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
650	150keV threshold loading for FEE of the part 6 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_150kevp6_0001.TPF**	☐	None
660	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
665	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
670	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
680	200keV threshold loading for FEE of the part 6 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_200kevp6_0001.TPF**	☐	None
690	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-290 : Phase III.10

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
695	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
700	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
710	300keV threshold loading for FEE of the part 6 only (100 kev for the rest)	0	03		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_300kevp6_0001.TPF**	☐	None
720	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
725	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
730	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
740	Restore the nominal ACS energy threshold	0	02		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_fmconfig_00zz.TPF**	☐	None
750	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
	Total Duration :	21	16				

CP SPI - 300

Title: Influence of the extension of the saturated events on the background

Description (Purpose): The purpose of this activity is to perform a few acquisitions in Operational Mode, 1 hr each, changing the ACS energy thresholds at 100 keV (default by fmconfig) and 300 keV for two values of the extended veto gate parameter and one acquisition of 4 hours in the current nominal configuration

The final objective is to analyse the influence of the saturated events on the background and determine the best setting.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- Spectra accumulation = 27 min (triggered by IASW)
- GeD HV = 4000V
- ACS thresholds=100keV

Constraints:
- To be executed after SPI-290
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s (TBC)

Special Pointing Requirements: Stable pointing witrh OTF=1

Success Criteria: - Succesful determination of the best ACS setting for extension of saturated events w.r.t. the background

Inputs: - TPF files:
ES1722_DF-AFADJ_xtndva00_0002.TPF
ES1722_DF-AFADJ_xtndva25_0002.TPF
ES1722_DF-AFADJ_xtndva37_0002.TPF
ES1737_AS-ENDSC_0300-kev_0001.TPF
ES1722_DF-AFADJ_fmconfig_00zz.TPF
ES1737_AS-ENDSC_fmconfig_00zz.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-300 : Phase III.11

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
20	Set DFEE configuration (TBD) xtndva raw_value AD value 1	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtndva00_0002.TPF or ES1722_DF-AFADJ_xtndva25_0002.TPF or ES1722_DF-AFADJ_xtndva37_0002.TPF**	☐	None

CP SPI-300 : Phase III.11

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
30	Transition to Operational Photon/Photon mode 100 keV threshold with DFEE xtndva value 1	0	01		FCP_SPI1_0130	☐	None
35	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
40	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
50	Set DFEE configuration (TBD) xtndva raw_value AD value 2	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtndva00_0002.TPF or ES1722_DF-AFADJ_xtndva25_0002.TPF or ES1722_DF-AFADJ_xtndva37_0002.TPF**	☐	None
60	Transition to Operational Photon/Photon mode 100 keV threshold with DFEE xtndva value 2	0	01		FCP_SPI1_0130	☐	None
65	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
70	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
80	300 keV threshold loading	0	02		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_0300-kev_0001.TPF**	☐	None
90	Transition to Operational Photon/Photon mode 300 keV threshold with DFEE xtndva value 2	0	01		FCP_SPI1_0130	☐	None
95	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
100	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement

CP SPI-300 : Phase III.11

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
110	Set DFEE configuration (TBD) xtndva raw_value AD value 1	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtndva00_0002.TPF or ES1722_DF-AFADJ_xtndva25_0002.TPF or ES1722_DF-AFADJ_xtndva37_0002.TPF**	☐	None
120	Transition to Operational Photon/Photon mode 300 keV threshold with DFEE xtndva value 1	0	01		FCP_SPI1_0130	☐	None
125	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
130	Back to configuration mode after at least one hour of acquisition when the second OEM "end of spectra transmission" is received	1	00		FCP_SPI1_0160	☑	CESR WS Background measurement
140	Restore ACS configuration	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_fmconfig_00zz.TPF**	☐	None
150	Restore DFEE configuration	0	00		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_fmconfig_00zz.TPF**	☐	None
160	Transition to Operational Photon/Photon mode and acquire data for at least 4 hr	4	00		FCP_SPI1_0130	☑	CESR WS Background measurement
165	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
	Total Duration :	8	30				

CP SPI - 310

Title: Influence of the ACS + PSAC parameters on the sensitivity - ACS best configurations

Description (Purpose): The purpose of this activity is to set 2 selected ACS configurations and test them with acquisitions of at least 12 hr in Operational Mode while performing a dithering pattern on a know source.
The configurations are defined on the basis of the data collection performed in the activities SPI-290 and 300.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- Spectra accumulation = 27min
- GeD HV = 4000V

Constraints:
- To be executed after SPI-300
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s (TBC)

Special Pointing Requirements: Hexagonal Dithering pattern.
A source (Cygnus X1) is required (TBC by JP Roques)

Success Criteria: - Succesful characterisation of the sensibility w.r.t. the ACS configuration

Inputs:
- Results from activities SPI-290 and 300
- TPF files:
ES1737_AS-ENDSC_fmconfig_00zz.TPF
ES1737_AS-ENDSC_0150-kev_0001.TPF
ES1737_AS-ENDSC_0200-kev_0001.TPF
ES1737_AS-ENDSC_0300-kev_0001.TPF
ES1722_DF-AFADJ_fmconfig_00zz.TPF
ES1722_DF-AFADJ_xtndva00_0002.TPF
ES1722_DF-AFADJ_xtndva25_0002.TPF
ES1722_DF-AFADJ_xtndva37_0002.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-310 : Phase III.12

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
20	FEE energy threshold loading N°1	0	02		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_fmconfig_00zz.TPF**	☐	None

CP SPI-310 : Phase III.12

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
30	Set in DFEE extended veto gate value optimized n°1	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_fmconfig_00zz.TPF**	☐	None
40	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
45	Acquire data while performing 4 Hexagonal Dithering Patterns centered on Cygnus-X1. Each pointing should last 30 min. NOTE: To be performed by Automatic Timeline driven by PREQs from POS	13	00		POS Rev#TBD	☑	CESR WS
50	Back to configuration mode (wait the end of spectra transmission OEM)	0	01		FCP_SPI1_0160	☐	None
60	FEE energy threshold loading N°2	0	02		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_0150-kev_0001.TPF or ES1737_AS-ENDSC_0200-kev_0001.TPF or ES1737_AS-ENDSC_0300-kev_0001.TPF**	☐	None
70	Set in DFEE extended veto gate value optimized n°2	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtndva00_0002.TPF or ES1722_DF-AFADJ_xtndva25_0002.TPF or ES1722_DF-AFADJ_xtndva37_0002.TPF**	☐	None
80	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
85	Acquire data while performing 4 Hexagonal Dithering Patterns centered on Cygnus-X1. Each pointing should last 30 min. NOTE: To be performed by Automatic Timeline driven by PREQs from POS	12	30		POS Rev#TBD	☑	CESR WS
90	Back to configuration mode (wait the end of spectra transmission OEM)	0	01		FCP_SPI1_0160	☐	None
	Total Duration :	25	43				

CP SPI - 314

Title: Influence of the ACS + PSAC parameters on the sensitivity - PSAC effect on the sensitivity

Description (Purpose): The purpose of this activity is to set the ACS configuration N°1 selected for activity SPI-310 and perform two 12 hr acquisitions in Operational Mode, one with PSAC off, the second with PSAC on (PSAC veto masked) with PSAC threshold at 1507mV.

The objective is to check the sensibility at 511keV.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- Spectra accumulation = 27 min (triggered by IASW)
- GeD HV = 4000V

Constraints:
- To be executed after SPI-310
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 36 pkt/8s (TBC)

Special Pointing Requirements: Stable pointing with OTF=1 for the entire duration, avoiding the galactic center

Success Criteria: - Succesful characterisation of the sensibility w.r.t. the PSAC

Inputs:
- Results from activity SPI-310
- TPF files:
ES1730_AS-VTPLS_m1234560_0001.TPF
ES1737_AS-ENDSC_psac1507_0001.TPF
ES1737_AS-ENDSC_fmconfig_00zz.TPF
ES1730_AS-VTPLS_fmconfig_00zz.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-314 : Phase III.12

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
20	ACS configuration including high energy thresholds loading with PSAC masked	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_m1234560_0001.TPF** **Use: ES1737_AS-ENDSC_fmconfig_00zz.TPF**	☐	None
30	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-314 : Phase III.12

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
35	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
40	Back to configuration mode after 12 hr of data acquisition and the last End of Spectra transmisson OEM	12	00		FCP_SPI1_0160	☑	CESR WS
50	ACS configuration N°1 with high energy thresholds for the PSAC (1507 mV)	0	02		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_psac1507_0001.TPF** **Use: ES1730_AS-VTPLS_fmconfig_00zz.TPF**	☐	None
60	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
65	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
70	Wait 12 hr of data acqusition and the last End of Spectra Transmission OEM	12	00		Commissioning TL	☑	CESR WS
	Total Duration :	24	17				

CP SPI - 318

Title: Influence of the ACS + PSAC parameters on the sensitivity - ACS+PSAC final configuration

Description (Purpose): The purpose of this activity is to set the ACS+ PSAC configuration in the final configuration and measure the ACS saturated events with 2 extension values.

Each measurement last 12 hours in Operational Mode.

We need for the complete period a stable pointing for all the operational mode in order to have a spectra accumulation of 27 minutes and automatically restarted by IASW.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- Spectra accumulation = 27 min (triggered by IASW)
- GeD HV = 4000V

Constraints:
- To be executed after SPI-314
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 46 pkt/8s

Special Pointing Requirements: Stable pointing with OTF=1

Success Criteria: - Succesful achievement of the ACS+PSAC configuration for optimal sensitivity

Inputs:
- Results from activity SPI-310 and 314
- TPF files:
ES1722_DF-AFADJ_xtndva00_0002.TPF
ES1722_DF-AFADJ_xtndva25_0002.TPF
ES1722_DF-AFADJ_xtndva37_0002.TPF
ES1737_AS-ENDSC_fmconfig_00zz.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-318 : Phase III.12

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
20	Set the new nominal ACS configuration (defined after SPI-300)	0	02		FCP_SPI1_0170 **Use: ES1737_AS-ENDSC_fmconfig_00zz.TPF**	☐	None

CP SPI-318 : Phase III.12

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
30	Set in DFEE the ACS extension value n° 1	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtndva00_0002.TPF or ES1722_DF-AFADJ_xtndva25_0002.TPF or ES1722_DF-AFADJ_xtndva37_0002.TPF**	☐	None
40	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
45	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
50	Back to configuration mode after 12 hr of data acquisition and the last End of Spectra transmisson OEM	12	00		FCP_SPI1_0160	☑	CESR WS
60	Set in DFEE the ACS extension value n° 2	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_xtndva00_0002.TPF or ES1722_DF-AFADJ_xtndva25_0002.TPF or ES1722_DF-AFADJ_xtndva37_0002.TPF**	☐	None
70	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None
75	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
80	Wait 12 hr of data acqusition and the last End of Spectra Transmission OEM	12	00		Commissioning TL	☑	CESR WS
	Total Duration :	24	15				

CP SPI - 320

Title: Measurement of the background with one ACS BGO inactive

Description (Purpose): For the measurement of the background to be correlated with the mathematical model, two FEEs of the ACS SSA (section 3 and 4) are deactivated and an acquisition of 12 hr in Operational Mode performed.

We need for the complete period a stable pointing for all the operational mode in order to have a spectra accumulation of 27 minutes and automatically restarted by IASW.

Initial Configuration:
- SPI IASW and S/A in Operational Mode
- S/A nominal Flight configuration
- Spectra accumulation = 27 min (triggered by IASW)
- GeD HV = 4000V

Constraints:
- To be executed after SPI-320
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 46 pkt/8s

Special Pointing Requirements: Stable pointing on empty field

Success Criteria: - Succesful data collection for background mathematical model

Inputs: - TPF files:
ES1730_AS-VTPLS_maskxxyy_0001.TPF (xx and yy FEE numbers TBD by MPE)
ES1722_DF-AFADJ_fmconfig_00zz.TPF

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-320 : Phase III.13

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
20	ACS configuration with two FEE of SAA masked	0	02		FCP_SPI1_0170 **Use: ES1730_AS-VTPLS_maskxxyy_0001.TPF**	☐	None
30	Set the new DFEE nominal configuration	0	02		FCP_SPI1_0170 **Use: ES1722_DF-AFADJ_fmconfig_00zz.TPF**	☐	None
40	Transition to Operational Photon/Photon mode	0	01		FCP_SPI1_0130	☐	None

CP SPI-320 : Phase III.13

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
50	- Mask OTF (I.e. OTF=0) - Set BCP Pnt_dur=0 , Pnt_nr=0, Rev_nr=current - Unmask OTF (I.e. OTF=1) - Set BCP Pnt_dur=1800s, Pnt_nr=K, Rev_nr=current	0	03		FCP_SPI1_0131	☐	None
60	Wait 12 hr of data acqusition and the last End of Spectra Transmission OEM	12	00		Commissioning TL	☑	CESR WS Background measurement
	Total Duration :	12	09				

CP SPI - 330

Title: Second step of PSD calibration

Description (Purpose): Uploading of the new library tables and verification by 12 hr acquisition in Calibration mode.

Initial Configuration:
- SPI IASW and S/A in Configuration Mode
- S/A nominal Flight configuration

Constraints:
- To be executed after SPI-320
- Cold plate temperature = 90K
- BCP distribution to SPI1 enabled
- Outside of Rad Belt / Altitude > 60000km
- SPI PST Allocation >/= 80 pkt/8s (TBC)

Special Pointing Requirements: Empty field for the Calibration Mode

Success Criteria: - Succesful data collection for background mathematical model correlation

Inputs:
- Stack Import files for the SPI Library Upload: SPIx_PSD_LIB_yyyymmddhhmmss_vvv.tar.Z
- OBSMS images of the Library (for reference only):
IIMG_P_PSD_1025_00004_T_d_rrr_000_0.INT for SPI DPE1
IIMG_R_PSD_1153_00004_T_d_rrr_000_0.INT for SPI DPE2

Involved Teams: MOC FCT; SPI Team at MOC

CP SPI-330 : Phase III.14

Step Nr	Description	Estimated Duration hh	mm	UM Procedure	FOP Procedure	Science Feedback	Special Tools
10	Back to configuration mode	0	01		FCP_SPI1_0160	☐	None
20	New library tables uploading	8	00		FCP_SPI1_0145 **Use: SPIx_PSD_LIB_yyyymmddhhmmss_vvv.tar.Z**	☐	None
30	Transition to PSD calibration mode: acquire data for 12hr	12	00		FCP_SPI1_0140	☑	CESR WS
	Total Duration :	20	01				