| AST | AGILE |
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# TABLE OF CONTENTS

1. General 3
1.1. Objective and scope of the document....3
1.2. Applicable and reference documents....3
1.3. Reference documents....3
1.4. Acronyms 3

2. AC FEE configuration refining....5
2.1. AC-LAT 3.2 threshold increasing....5
2.2. AC-TOP 2 threshold lowering....5

3. AC Veto efficiency estimation....6

4. SA FEE configuration refining....7
4.1. AC Heaters thresholds lowering *....7
4.2. SA Gain Electrical Calibration....7
4.3. SA FEE parameters update....8
4.4. SA Gain Electrical Calibration....8

5. GRID configuration refining....9

6. ST planes alignment estimation....10

7. MCAL general verification....10
7.1. GRID and MCAL Physical Calibration....10
7.2. Background estimation....10
7.3. MCAL Electrical Calibration....11

8. MCAL Burst trigger tuning....11
8.1. Scientific Ratemeters offsets updating....11
8.2. SIT≥64ms Burst trigger tuning....12
8.3. 1ms≤SIT<64ms Burst trigger tuning....12
8.4. Sub-millisecond Burst trigger tuning....14
8.5. MCAL Burst acquisition....14
8.6. MCAL Burst trigger fake inhibition....15

9. SA Burst trigger tuning....16
9.1. SIT≥64ms Burst trigger tuning....16
9.2. 1ms≤SIT<64ms Burst trigger tuning....21
9.3. Sub-millisecond Burst Trigger tuning....21

10. SA Raw Imaging tuning....22
10.1. Integration time and detector images verification....22
10.2. X attitude correction parameter scan....23
10.3. Z attitude correction parameter scan....24
10.4. Co-adding parameters tuning....25

11. SA Burst Imaging tuning....26
11.1. T_Stop logic tuning....26
11.2. Reconstructed Burst pixel test....26
11.3. X and Z Skycoord LUTs updating....27
11.4. ORBCOMM Burst Alert verification....27

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12. Final observation.....28
13. DATA EEPROM update.....29
14. Delta-Commissioning planning.....30

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# 1. GENERAL

## 1.1. Objective and scope of the document

The objective of this plan is to define the guidelines for the AGILE scientific delta-commissioning activities.
The pointing required is RA: 296.880, DEC: 34.501

## 1.2. Applicable and reference documents

**AD [1]**: AGILE Scientific Requirements, AGILE-IFC-SR-008 Issue 2

## 1.3. Reference documents

**RD [1]** AGILE Commissioning Plan – Engineering Phase, OPS-FSC-SAT-PLN-001-180.330 Issue 1
**RD [1]** AGILE Commissioning Plan – Scientific Phase, OPS-FSC-SAT-PLN-002-180.330 Issue 1

## 1.4. Acronyms

| | |
|---|---|
| **AC** | Anti-Coincidence |
| **AC-LAT** | AC Lateral panel |
| **AC-TOP** | AC Top panel |
| **BBFP** | Burst Background Filtering Procedure |
| **DC** | Daisy Chain |
| **FEE** | Front-End Electronics |
| **FTB** | Front End and Trigger Board |
| **GRID** | Gamma-Ray Imaging Detector |
| **HE** | High Energy |
| **HK** | Housekeeping |
| **MCAL** | Mini-Calorimeter |
| **LE** | Low Energy |
| **LUT** | Look-Up Table |
| **PDHU** | Payload Data Handling Unit |
| **P/L** | Payload |
| **SA** | Super-AGILE |
| **SAA** | South Atlantic Anomaly |
| **SAFEE** | Super-AGILE Front End Electronics |
| **SAIE** | Super-AGILE Interface Electronics |
| **SIT** | Short Integration Time |
| **ST** | Silicon Tracker |

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| | |
|---|---|
| **TC** | Telecommand |
| **TM** | Telemetry |

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| 2. AC FEE CONFIGURATION REFINING | | |
|---|---|---|
| | **2.1. AC-LAT 3.2 threshold increasing** | |
| **Number of orbits** | **Description** | **Principal activities** |
| 140 | AC FEE tuning | This step shall be repeated n times in order to optimize the AC-LAT 3.2 behaviour.<br>• Send T33S5 in order to update the AC-LAT 3.2 threshold<br>• AC observation in Nominal and SAA phases<br>• Check of the AC ratemeters in the TM(32,01) |
| | **2.2. AC-TOP 2 threshold lowering** | |
| **Number of orbits** | **Description** | **Principal activities** |
| 140 | AC FEE tuning | • Send T33S5 in order to set the AC-TOP 2 threshold to the 236 digital value<br>• AC observation in Nominal and SAA phases<br>• Check of the AC ratemeters in the TM(32,01) |

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| 3. AC VETO EFFICIENCY ESTIMATION | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 4 | Ac veto used by GRID Obs, SA Obs. and MCAL Stand-by. | • Send T33S5 in order to update the AC thresholds<br>• GRID Observation, SA Observation, MCAL in stand-by at PDHU level and AC Observation |
| 4 | GRID AC Veto efficiency estimation. | • Send T33S5 in order to update the AC thresholds<br>• GRID Physical Observation |
| 4 | MCAL Burst AC Veto efficiency estimation. | • Send T33S5 in order to update the AC thresholds<br>• MCAL Burst Physical Observation |

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## 4. SA FEE CONFIGURATION REFINING

### 4.1. AC Heaters thresholds lowering *

| Number of orbits | Description | Principal activities |
|---|---|---|
| 14 | AC heater thresholds: -28°C/-22°C. | • AC heaters thresholds updating: -28°C/-22°C<br>• AC temperatures (survival HKs) and SA temperatures monitoring |
| 14 | AC heater thresholds: -30°C/-25°C. | • AC heaters thresholds updating: -30°C/-25°C<br>• AC temperatures (survival HKs) and SA temperatures monitoring |

### 4.2. SA Gain Electrical Calibration

| Number of orbits | Description | Principal activities |
|---|---|---|
| 1 | SA Gain Calibration | • Send 4 T33S12 for Electrical Calibration of the SAIE-0 and SAIE-1 with 255 pulses<br>• AC heaters thresholds updated<br>• SA Electrical Calibration performed before SAA |

*N.B.: The task “AC heaters thresholds lowering” is not yet approved by the Mission Director.

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| 4.3. SA FEE parameters update | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 4 | SA FEE Parameters update | • Send T33S10 to update the DC thresholds.<br>• Send 48 T33S11 updating the XAA1 Reg-in<br>• SA Observation in all phases |
| **4.4. SA Gain Electrical Calibration** | | |
| **Number of orbits** | **Description** | **Principal activities** |
| 1 | SA Gain Calibration | • Send 4 T33S12 for Electrical Calibration of the SAIE-0 and SAIE-1 with 255 pulses<br>• AC heaters thresholds updated<br>• SA Electrical Calibration performed before SAA |

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| 5. GRID CONFIGURATION REFINING | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 1 | GRID Pedestal runs | • Send T33S2 with the Pedestal AC Veto set to “Particle 1”.<br>• 10 repetitions of the GRID Pedestal observation with AC in “Off” mode. |
| 2 | ST TAA1 reg-in updating | • Send the 96 T33S8 setting the TAA1 Reg-in.<br>• Check the FTB analog HKs.<br>• GRID Observation |
| 1 | GRID trigger parameters updating | This step shall be repeated n times in order to optimize the GRID PDHU setup.<br>• Send the T33S2, T33S3, T33S4 and the T33S37 in order to optimize the GRID trigger logic.<br>• Upload a set of the GRID LUTs in order to optimize the GRID trigger logic.<br>• GRID Observation |

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| 6. ST PLANES ALIGNMENT ESTIMATION | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 130 | GRID Physical Calibration | • GRID Physical Calibration |
| **7. MCAL GENERAL VERIFICATION** | | |
| | **7.1. GRID and MCAL Physical Calibration** | |
| **Number of orbits** | **Description** | **Principal activities** |
| 6 | GRID and MCAL Ph. Calibration | • Send the T33S5 in order to set the AC veto signal with width=0 and delay=0.<br>• Send the T33S13 in order to increase the MCAL Burst FEE thresholds.<br>• GRID Physical Calibration and MCAL Physical Calibration |
| | **7.2. Background estimation** | |
| **Number of orbits** | **Description** | **Principal activities** |
| 5 | MCAL Ph. Calibration | • Send the T33S5 in order to set the AC veto signal with width=0 and delay=0.<br>• Send the T33S13 in order to increase the MCAL Burst FEE thresholds.<br>• MCAL Physical Calibration |

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| 7.3. MCAL Electrical Calibration | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 1 | MCAL Electrical Calibration | • Send T33S13 and T33S14 for the Electrical Calibration setup I<br>• MCAL Electrical calibration (20 minutes)<br>• Send T33S13 and T33S14 for the Electrical Calibration setup II<br>• MCAL Electrical calibration (20 minutes)<br>• Send T33S13 in order to restore the MCAL FEE configuration |
| **8. MCAL BURST TRIGGER TUNING** | | |
| **8.1. Scientific Ratemeters offsets updating** | | |
| **Number of orbits** | **Description** | **Principal activities** |
| 1 | MCAL offsets updating | • Patch the offsets used by the MCAL scientific ratemeters logic. |

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| 8.2. SIT≥64ms Burst trigger tuning | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 1 | MCAL Burst trigger | • Send the T33S15, the T33S16 and the 4 T33S19 in order to disable the Burst search on SIT<64ms and to configure the other channels on the "dynamic trigger strategy".<br>• Send the T33S13 in order to increase the MCAL Burst FEE thresholds.<br>• MCAL Burst Observation with selection of the Trigger LUT "all rejected". |
| 14 | MCAL Burst trigger | This step shall be repeated several times with different configurations (starting from the last setup used in the June-July commissioning phase) in order to optimize the SW Burst Search setup.<br>• Send the T33S15, the T33S16 and the 4 T33S19 in order to disable the Burst search on SIT<64ms and to configure the other channels with different settings.<br>• MCAL Burst Observation with selection of the Trigger LUT "all rejected". |
| 2 | MCAL Burst acquisition | • Send the T33S15, the T33S16 and the 4 T33S19 in order to disable the Burst search on SIT<64ms and to configure the other channels with the optimal setup.<br>• Update of a the MCAL Burst Trigger LUTs.<br>• MCAL Burst Observation with selection of a Trigger LUT enabling the Burst telemetry download. |
| **8.3. 1ms≤SIT<64ms Burst trigger tuning** | | |
| **Number of orbits** | **Description** | **Principal activities** |

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| | | |
|---|---|---|
| 14 | MCAL Burst trigger | This step shall be repeated several times with different configurations (starting from the last setup used in the June-July commissioning phase) in order to optimize the HW Burst Search setup.<br>• Send the T33S15, the T33S16 and the 4 T33S19 in order to disable the Burst search on SIT≥64ms, to disable the sub-millisecond and to configure the other channels with different settings.<br>• MCAL Burst Observation with selection of the BBFP LUTs “all rejected”. |
| 2 | MCAL Burst trigger | • Send the T33S15, the T33S16 and the 4 T33S19 in order to disable the Burst search on SIT≥64ms, to disable the sub-millisecond and to configure the other channels with optimal setup.<br>• Update of a the BBFP LUTs.<br>• MCAL Burst Observation with selection of the BBFP LUTs enabling the Burst telemetry download. |

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| 8.4. Sub-millisecond Burst trigger tuning | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 5 | MCAL Burst trigger | This step shall be repeated several times with different configurations (starting from the last setup used in the June-July commissioning phase) in order to optimize the Sub-millisecond Burst Search.<br>• Send the T33S15, the T33S16 and the 4 T33S19 in order to disable the Burst search on SIT≥1ms and to enable the sub-millisecond configured with different settings.<br>• MCAL Burst Observation. |
| **8.5. MCAL Burst acquisition** | | |
| **Number of orbits** | **Description** | **Principal activities** |
| 4 | MCAL Burst trigger | • Send the T33S15, the T33S16 and the 4 T33S19 with optimal setup.<br>• MCAL Burst Observation with selection of the optimal LUTs. |

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| 8.6. MCAL Burst trigger fake inhibition | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 4 | MCAL Burst trigger | • Send the T33S15, the T33S16 and the 4 T33S19 with optimal setup.<br>• Send Earth Occ. phase transition TCs time-tagged respect to the eclipse exit with special delay/width.<br>• MCAL Burst Observation with selection of the optimal LUTs. |

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## 9. SA BURST TRIGGER TUNING

### 9.1. SIT≥64ms Burst trigger tuning

| Number of orbits | Description | Principal activities |
|---|---|---|
| 4 | SA Burst trigger SIT=64ms | This step shall be repeated 4 times with different trigger configurations in order to optimize the Burst Search setup.<br><br>• Send the T33S15, the T33S16 in order to disable the Burst search on SIT<64ms and to configure the SA Burst Search Energy channels.<br>• Send 4 T33S17 in order to configure the Burst Search of the D0-LE channel on the 64ms and disabling the other channels and the other SITs.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=64ms in order to configure the Burst Search of the D0-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=64ms in order to configure the Burst Search of the D0-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=64ms in order to configure the Burst Search of the D1-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=64ms in order to configure the Burst Search of the D1-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=64ms in order to configure the Burst Search of the D2-LE channel on and disabling the other channels. |

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| | | • SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=64ms in order to configure the Burst Search of the D2-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=64ms in order to configure the Burst Search of the D3-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=64ms in order to configure the Burst Search of the D3-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC) |
| 4 | SA Burst trigger SIT=256ms | This step shall be repeated 4 times with different trigger configurations in order to optimize the Burst Search setup.<br><br>• Send the T33S15, the T33S16 in order to disable the Burst search on SIT<256ms and to configure the SA Burst Search Energy channels.<br>• Send 4 T33S17 in order to configure the Burst Search of the D0-LE channel on the 256ms and disabling the other channels and the other SITs.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=256ms in order to configure the Burst Search of the D0-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=256ms in order to configure the Burst Search of the D0-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=256ms in order to configure the Burst Search of the D1-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=256ms in order to configure the Burst Search of the D1-HE |

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| | | channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=256ms in order to configure the Burst Search of the D2-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=256ms in order to configure the Burst Search of the D2-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=256ms in order to configure the Burst Search of the D3-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=256ms in order to configure the Burst Search of the D3-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC) |
| 4 | SA Burst trigger SIT=1024ms | This step shall be repeated 4 times with different trigger configurations in order to optimize the Burst Search setup.<br><br>• Send the T33S15, the T33S16 in order to disable the Burst search on SIT<1024ms and to configure the SA Burst Search Energy channels.<br>• Send 4 T33S17 in order to configure the Burst Search of the D0-LE channel on the 1024ms and disabling the other channels and the other SITs.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=1024ms in order to configure the Burst Search of the D0-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=1024ms in order to configure the Burst Search of the D0-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC) |

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| | | |
|---|---|---|
| | | • Send T33S17 with SIT=1024ms in order to configure the Burst Search of the D1-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=1024ms in order to configure the Burst Search of the D1-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=1024ms in order to configure the Burst Search of the D2-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=1024ms in order to configure the Burst Search of the D2-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=1024ms in order to configure the Burst Search of the D3-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=1024ms in order to configure the Burst Search of the D3-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC) |
| 4 | SA Burst trigger SIT=8192ms | This step shall be repeated 4 times with different trigger configurations in order to optimize the Burst Search setup.<br><br>• Send the T33S15, the T33S16 in order to disable the Burst search on SIT<8192ms and to configure the SA Burst Search Energy channels.<br>• Send 4 T33S17 in order to configure the Burst Search of the D0-LE channel on the 8192ms and disabling the other channels and the other SITs.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=8192ms in order to configure the Burst Search of the D0-LE channel on and disabling the other channels. |

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|---|---|---|
| | | • SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=8192ms in order to configure the Burst Search of the D0-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=8192ms in order to configure the Burst Search of the D1-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=8192ms in order to configure the Burst Search of the D1-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=8192ms in order to configure the Burst Search of the D2-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=8192ms in order to configure the Burst Search of the D2-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=8192ms in order to configure the Burst Search of the D3-LE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC)<br>• Send T33S17 with SIT=8192ms in order to configure the Burst Search of the D3-HE channel on and disabling the other channels.<br>• SA Burst Observation (10 minutes TBC) |

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| 9.2. 1ms≤SIT<64ms Burst trigger tuning | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 14 | SA Burst trigger 1ms≤SIT<64ms | This step shall be repeated several times with different configurations (starting from the last setup used in the June-July commissioning phase) in order to optimize the HW Burst Search setup.<br>• Send the T33S15, the T33S16 and the 4 T33S19 in order to disable the Burst search on SIT≥64ms, to disable the sub-millisecond and to configure the other channels with different settings.<br>• SA Burst Observation. |
| **9.3. Sub-millisecond Burst Trigger tuning** | | |
| **Number of orbits** | **Description** | **Principal activities** |
| 5 | SA Burst trigger SIT<1ms | This step shall be repeated several times with different configurations (starting from the last setup used in the June-July commissioning phase) in order to optimize the Sub-millisecond Burst Search.<br>• Send the T33S15, the T33S16 and the 4 T33S19 in order to disable the Burst search on SIT≥1ms, to enable the sub-millisecond configured with different settings and to enable the OR between the MCAL and the SA Burst trigger.<br>• MCAL Burst Observation and SA Burst Observation. |

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## 10. SA RAW IMAGING TUNING

### 10.1. Integration time and detector images verification

| Number of orbits | Description | Principal activities |
|---|---|---|
| 1 | SA photon-by photon and raw imaging | • Send the T33S18 in order to set the imaging integration time to 128s and the attitude correction X and Z parameters to 0.<br>• SA photon-by-photon and raw imaging activation (**no standard configuration**) |

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| 10.2. X attitude correction parameter scan | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 1 | SA photon-by photon and raw imaging | • Send T33S18 with the X attitude corr. parameter set to 1.00 and the Z parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the X attitude corr. parameter set to 1.05 and the Z parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the X attitude corr. parameter set to 1.10 and the Z parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the X attitude corr. parameter set to 1.15 and the Z parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the X attitude corr. parameter set to 1.20 and the Z parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the X attitude corr. parameter set to 1.25 and the Z parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the X attitude corr. parameter set to 1.30 and the Z parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the X attitude corr. parameter set to 1.35 and the Z parameter set to 0. |

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| | | |
|---|---|---|
| | | • SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the X attitude corr. parameter set to 1.40 and the Z parameter set to 0.<br>• SA Burst Observation (7 minutes TBC) |
| | **10.3. Z attitude correction parameter scan** | |
| **Number of orbits** | **Description** | **Principal activities** |
| 1 | SA photon-by photon and raw imaging | • Send T33S18 with the Z attitude corr. parameter set to 1.00 and the X parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the Z attitude corr. parameter set to 1.05 and the X parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the Z attitude corr. parameter set to 1.10 and the X parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the Z attitude corr. parameter set to 1.15 and the X parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the Z attitude corr. parameter set to 1.20 and the X parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the Z attitude corr. parameter set to 1.25 and the X parameter set to 0.<br>• SA Burst Observation (7 minutes TBC) |

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| | | |
|---|---|---|
| | | • Send T33S18 with the Z attitude corr. parameter set to 1.30 and the X parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the Z attitude corr. parameter set to 1.35 and the X parameter set to 0.<br>• SA Burst Observation (7 minutes TBC)<br>• Send T33S18 with the Z attitude corr. parameter set to 1.40 and the X parameter set to 0.<br>• SA Burst Observation (7 minutes TBC) |
| **10.4. Co-adding parameters tuning** | | |
| **Number of orbits** | **Description** | **Principal activities** |
| 1 | SA photon-by photon and raw imaging | • Send the T33S18 in order to set the imaging integration time to 128s, the attitude correction X and Z parameters to the optimal values determined above and the X and Z.<br>• SA photon-by-photon and raw imaging activation (**no standard configuration**) |

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## 11. SA BURST IMAGING TUNING

### 11.1. T_Stop logic tuning

| Number of orbits | Description | Principal activities |
|---|---|---|
| 1 | SA Burst Observation | • Send T33S17 with SIT=8192s containing the trigger static logic enabled and the threshold set to 1.<br>• Send the T33S18 in order to set the imaging integration time to 128s, the T_stop calculation enabled and the X and Z imaging thresholds set to 0.<br>• SA Burst Observation. |

### 11.2. Reconstructed Burst pixel test

| Number of orbits | Description | Principal activities |
|---|---|---|
| 1 | SA Burst Observation | The task hereafter shall be performed with the Payload in **Test mode**.<br><br>• Send T33S10 with all the SA DCs disabled.<br>• Send T33S17 with SIT=8192s containing the trigger static logic enabled and the threshold set to 1.<br>• Upload special X and Z Skycoord. LUTs.<br>• Send the T33S18 in order to set the imaging integration time to 128s and the T_stop calculation disabled (T_stop fixed value set to 200s TBC).<br>• Enter Observation mode<br>• Enter Test mode<br>• After 4 minutes send T33S10 with all the SA DCs enabled. |

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| 11.3. X and Z Skycoord LUTs updating | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| 1 | SA Burst Observation | The task hereafter shall be performed with the Payload in **Test mode.**<br><br>• Send T33S10 with all the SA DCs disabled.<br>• Send T33S17 with SIT=8192s containing the trigger static logic enabled and the threshold set to 1.<br>• Upload updated X and Z Skycoord. LUTs.<br>• Send the T33S18 in order to set the imaging integration time to 128s and the T_stop calculation disabled (T_stop fixed value set to 200s TBC).<br>• Enter Observation mode<br>• Enter Test mode<br>• After 4 minutes send T33S10 with all the SA DCs enabled. |
| **11.4. ORBCOMM Burst Alert verification** | | |
| **Number of orbits** | **Description** | **Principal activities** |
| 1 | SA Burst Observation | The task hereafter shall be performed with the Payload in **Test mode.**<br><br>• Send T33S10 with all the SA DCs disabled.<br>• Send T33S17 with SIT=8192s containing the trigger static logic enabled and the threshold set to 1.<br>• Send the T33S18 in order to set the imaging integration time to 128s and the T_stop calculation disabled (T_stop fixed value set to 600s TBC).<br>• Enter Observation mode<br>• Enter Test mode |

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| | | |
|---|---|---|
| | | • After 4 minutes send T33S10 with all the SA DCs enabled.<br>• ORBCOMM messages verification |
| **12. FINAL OBSERVATION** | | |
| **Number of orbits** | **Description** | **Principal activities** |
| 60 | Final Observation | • Set ST, SA, AC and MCAL FEEs with final configuration.<br>• Set SA and MCAL Burst with final configuration (OR between SA and MCA Burst trigger enabled)<br>• Ac Observation, GRID Observation, SA Observation, SA Burst Observation and MCAL Burst Observation |

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| 13. DATA EEPROM UPDATE | | |
|---|---|---|
| **Number of orbits** | **Description** | **Principal activities** |
| | DATA EEPROM configuration | • Send T33S2 with MID='DATA EEPROM'.<br>• Send T33S3 with MID='DATA EEPROM'.<br>• Send T33S4 with MID='DATA EEPROM'.<br>• Send T33S5 with MID='DATA EEPROM'.<br>• Send T33S6 with MID='DATA EEPROM'.<br>• Send T33S7 with MID='DATA EEPROM'.<br>• Send 96 T33S8 with MID='DATA EEPROM'.<br>• Send T33S9 with MID='DATA EEPROM'.<br>• Send T33S10 with MID='DATA EEPROM'.<br>• Send 48 T33S11 with MID='DATA EEPROM'.<br>• Send 4 T33S12 with MID='DATA EEPROM'.<br>• Send T33S13 with MID='DATA EEPROM'.<br>• Send T33S15 with MID='DATA EEPROM'.<br>• Send T33S16 with MID='DATA EEPROM'.<br>• Send 4 T33S17 with MID='DATA EEPROM'.<br>• Send T33S18 with MID='DATA EEPROM'.<br>• Send 4 T33S19 with MID='DATA EEPROM'.<br>• Send T33S37 with MID='DATA EEPROM'<br>• Dump of TC queue every 6 TCs sent.<br>• At the end, dump of the entire DATA EEPROM |

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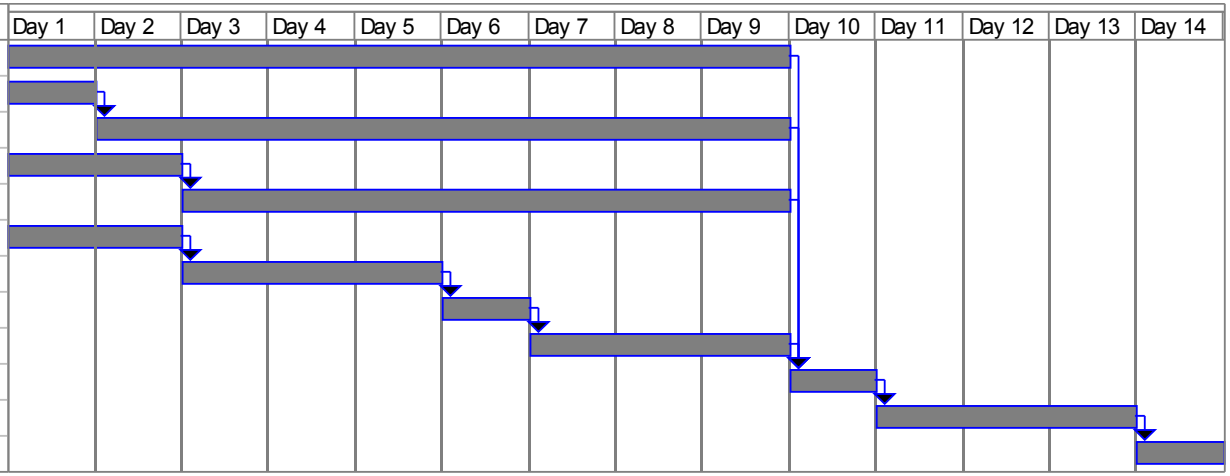
## 14. DELTA-COMMISSIONING PLANNING

| ID | Task Name | Duration |
|---|---|---|
| 1 | AC FEE configuration | 9 days |
| 2 | ST FEE configuration | 1 day |
| 3 | ST planes alignment | 8 days |
| 4 | MCAL general verification | 2 days |
| 5 | MCAL Burst trigger tuning | 7 days |
| 6 | SA FEE configuration | 2 days |
| 7 | SA Burst trigger tuning | 3 days |
| 8 | SA Raw Imaging tuning | 1 day |
| 9 | SA Burst Imaging tuning | 3 days |
| 10 | AC Veto efficiency estimation | 1 day |
| 11 | Final observation | 3 days |
| 12 | DATA EEPROM update | 1 day |




N.B.: The duration of the task “AC heaters thresholds lowering” (see section 4.1) is not considered in this planning.

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