

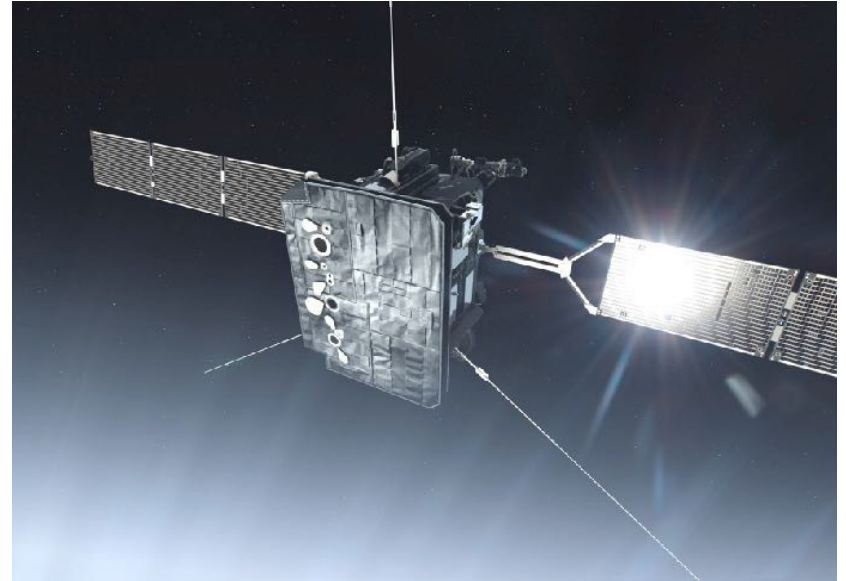


RPW Consortium Meeting #22 – RPW General Status

E. Lorfèvre - March 27th 2019

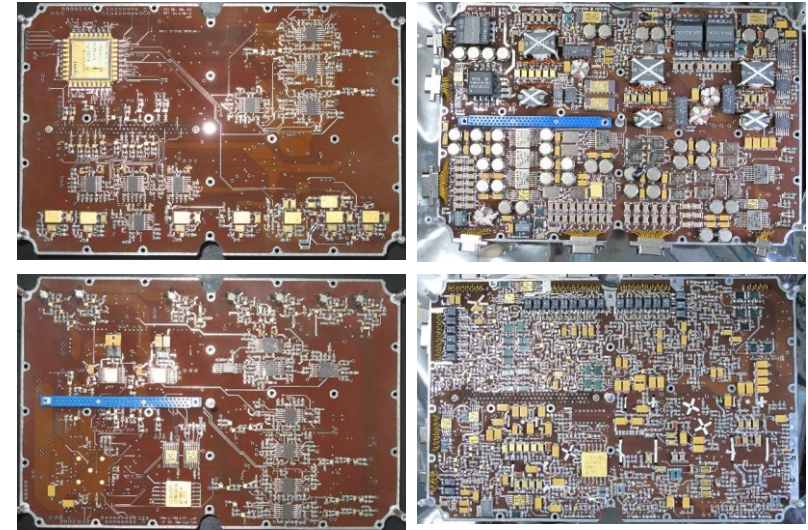
Agenda

- **MEB**
- **SCM**
- **Antennas**
- **S/C AIT Progress**
- **System and S/C Coming Activities**



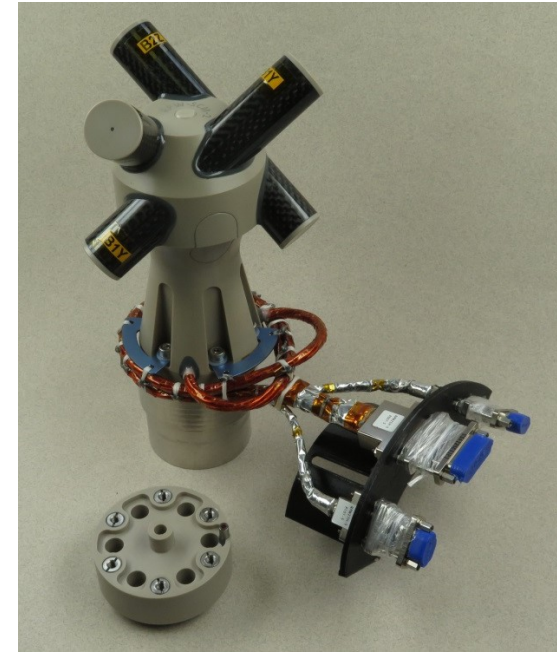
MEB

- **MEB software update is on-going**
 - DAS update taking into account LFR boot failure and “inconsistent state after (double) recovery procedure anomaly
 - LFR Software update taking into account “Unsynchronous events” and “Spurious at 96 Hz” anomalies LFR spare board (LPP, FR)
- **LFR PFM1 (spare) board completed, DRB held on 18/09/18, delta DRB on 06/11/18**
- **MEB/ LVPS-PDU spare boards (ASU, CZ)**
 - PFM1 : reduced EMC tests carried out, NCR to be investigated before delivery
 - FS2 : manufacturing completed: many defects observed, repairs required before testing,
 - ➔ major anomaly detected during preliminary tests, investigation in progress



SCM 1/2

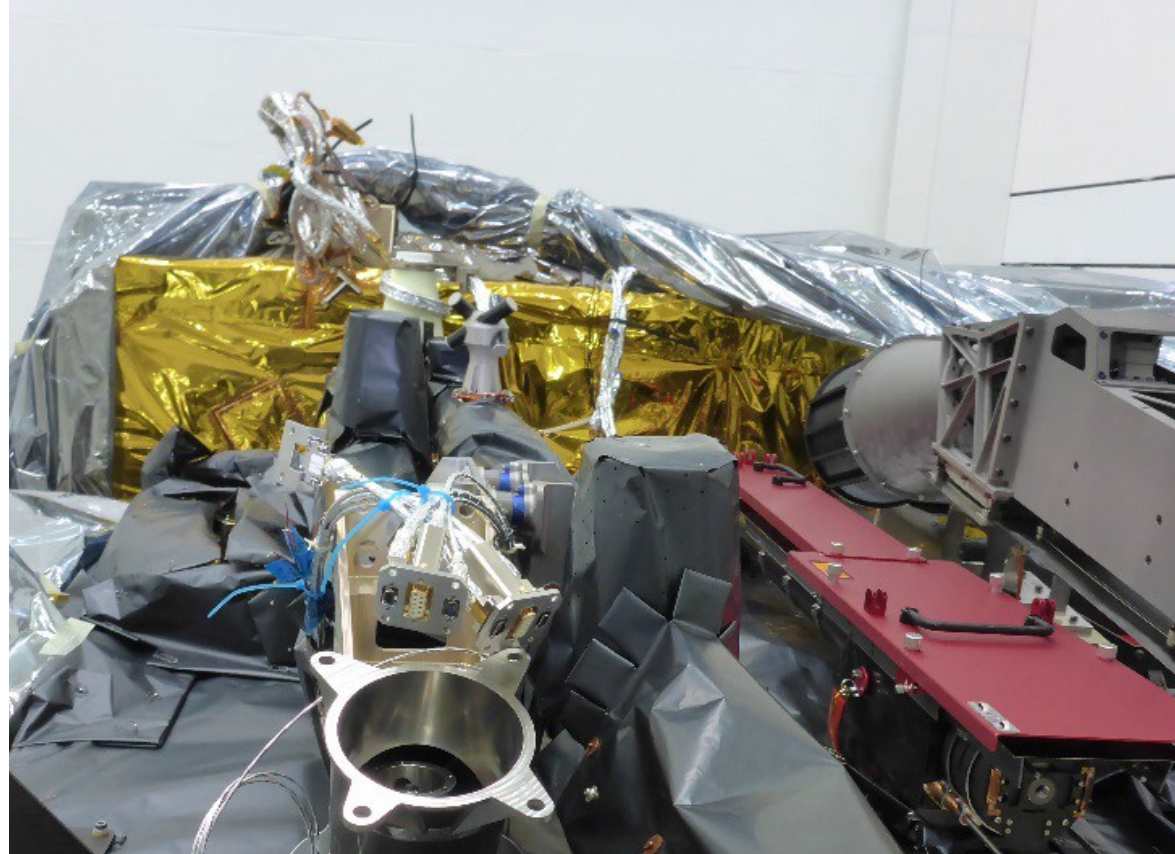
- **SCM FS delivered to Airbus to replace SCM PFM on 18/01/18**
- **SCM FS mechanical integration on ambient plate early August 2018 then on TVAC plate in October 2018**



- **SCM PFM MLI (for Tvac) delivered to IABG on 16/10/18**
 - 1 NCR (contamination), retrofitted by AIRBUS and used for TVAC test
 - FS MLI retrofitted by LPC2E / NEXEYA (Dec 2018) and delivered in January 2019

SCM 2/2

- **SCM FS installed on I-BOOM on S/C early January 2019**
 - Cleaning and inspection after S/C mechanical test to be performed
 - MLI installation by ADS pending

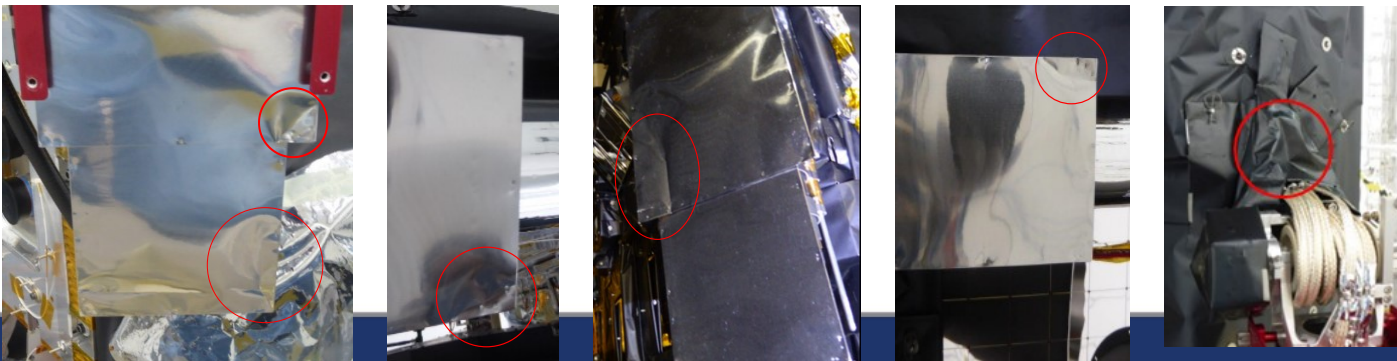


ANTENNAS

- **3 RPW antennas delivered on 28/06/18**
 - PY & MY antennas installed on S/C end of July 2018 (before TVAC)
2 NCR (now closed):
 - heatshield covers replaced early November 2018
 - frangibolt covers replaced early January 2019
 - PZ antenna installed on the satellite early January 19 (after TVAC)
 - 5 “incidents” on the antennas heatshields: 3 acceptable as is, 1 replaced early January 19, **1 to be assessed after inspection by CNES (to be planned)**
 - 1 “incident” on the hinge MLI, replaced early January 19

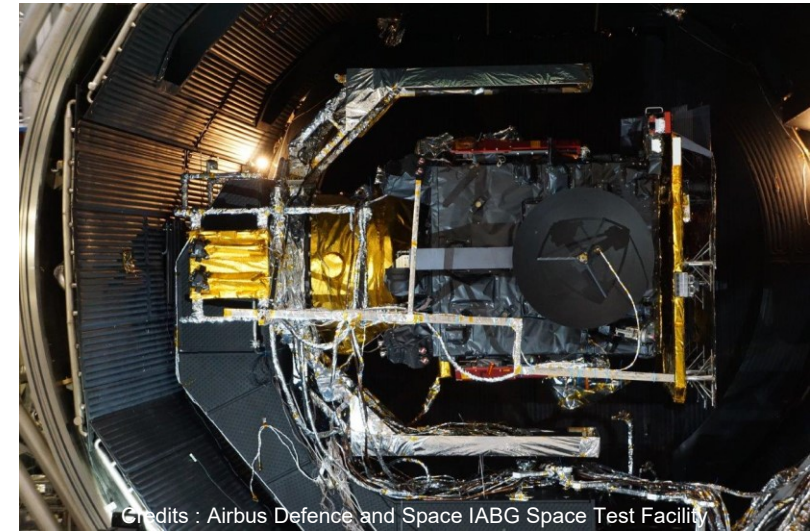


Credits : Airbus Defence and Space IABG Space Test Facility



S/C AIT Progress

- **S/C TVAC test in December 18 :**
 - RPW SFT before, during, after TVAC successfully carried out
 - RPW antennas colder than expected
- **"All instrument ON test" done successfully in full RPW configuration**
- **No FFT done so far**
- **Mechanical tests Feb to Mid-March 19 :**
 - Accelerometers on RPW antennas not recommended by CNES, however installed by AIRBUS
→ to be removed with great care
 - RPW SFT post mechanical test 15-16/03/19. OK a priori (pending final test data).
 - Antennas μ Switch testing to be done by ADS
 - Inspection of the antennas by CNES to be planned
- **Due to an NCR affecting a platform unit (IMU), I-Boom has been removed last week to gain access to a panel underneath. The re-integration should be performed soon, then a functional check of the I-Boom units will be performed.**



Activities at S/C Level 1/2

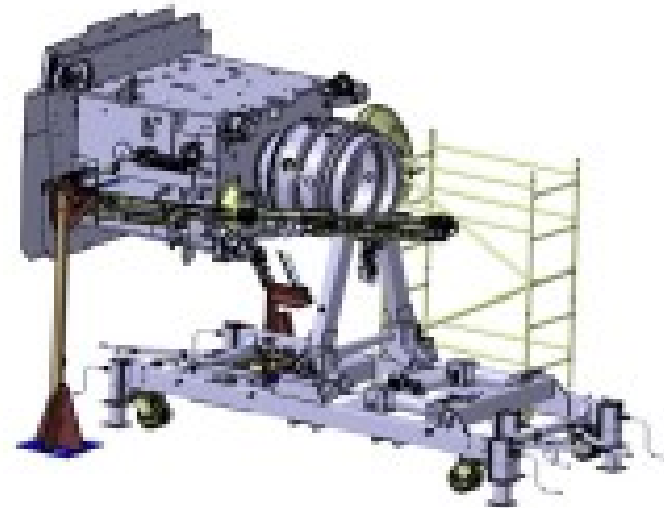
Next steps involving RPW (with RPW team in blue)

- **SCM FS MLI finalization: TBD**
- **Inspection of RPW antennas after mechanical test: TBD**
- **Heating lines validation of PZ antenna preamplifier: TBD**
- **EMC test preparation: background measurements to be carried out by CNES at IABG on 03-04/04/2019,**
- **FFT debug on ETB : 15-16/04/19**
- **RPW flight S/W upload:
SVT1a on 03/05/2018 + SVT1b 29/07-02/08/2019
Delivery to ESA of new RPW software (LFR + DAS) + IDB planned on the 05/04/2019**

Activities at S/C Level 2/2

Next steps involving RPW (with RPW team in blue)

- EMC tests 8-24/05/2019
- EMC RPW compatibility tests 28/05/2019
- RPW FFT in EMC chamber 29/05/2019.
SCM PFM to be returned to LPC2E after EMC campaign
- Magnetic test 28/05- 05/07/2019
- IIC on ETB : 07-09/08/2019
- MAG-RPW/SCM synchro test on ETB with final MAG SW:
Test procedure issued mid March 19. Test date TBD
- Inspection of RPW antennas on launch site : TBD



BACKUP SLIDES

Flight Software Upgrade

- **Upload on the first EEPROMs (2 NOM + 1 RED) is planned at the end of SVT-1a on 03/05/2019**
 - FSW upload MDOR will be validated on the MEB EM1 in mid-March (test report will be provided).
- **SFT has to be performed to validate the FSW upgrade on the flight HW during RPW FFT.**
- **If the SFT is successful, the FSW upload will be performed on the last EEPROM (RED)**
 - On SVT-1b if possible (1-2h duration activity) or on flight
- **Data package delivery at beginning of April**

Open issues and concerns

- **Communication :**
 - too restrictive email list imposed by ESA
 - lack of information about test progress, results, pictures
- **Contamination :**
 - RFD sent by AIRBUS to RPW. To be updated according to latest analysis. Cleaning required. Complete results of acid nitric tests pending
 - CNES contamination expert is posted at JAXA, Japan from March to August 2019
- **EMC**
 - System level analysis of the impact of all the spurious measured on P/F and P/L pending. Necessary for the completion of our performance report
- **Antennas :**
 - Deployment of RPW antennas above -55°C (hinge temperature) in LEOP : detailed scenario pending
 - Damages on heatshields + hinge MLI : inspection requested by CNES after mechanical tests and on the launch site

