

RPW ANT PROGRESS STATUS

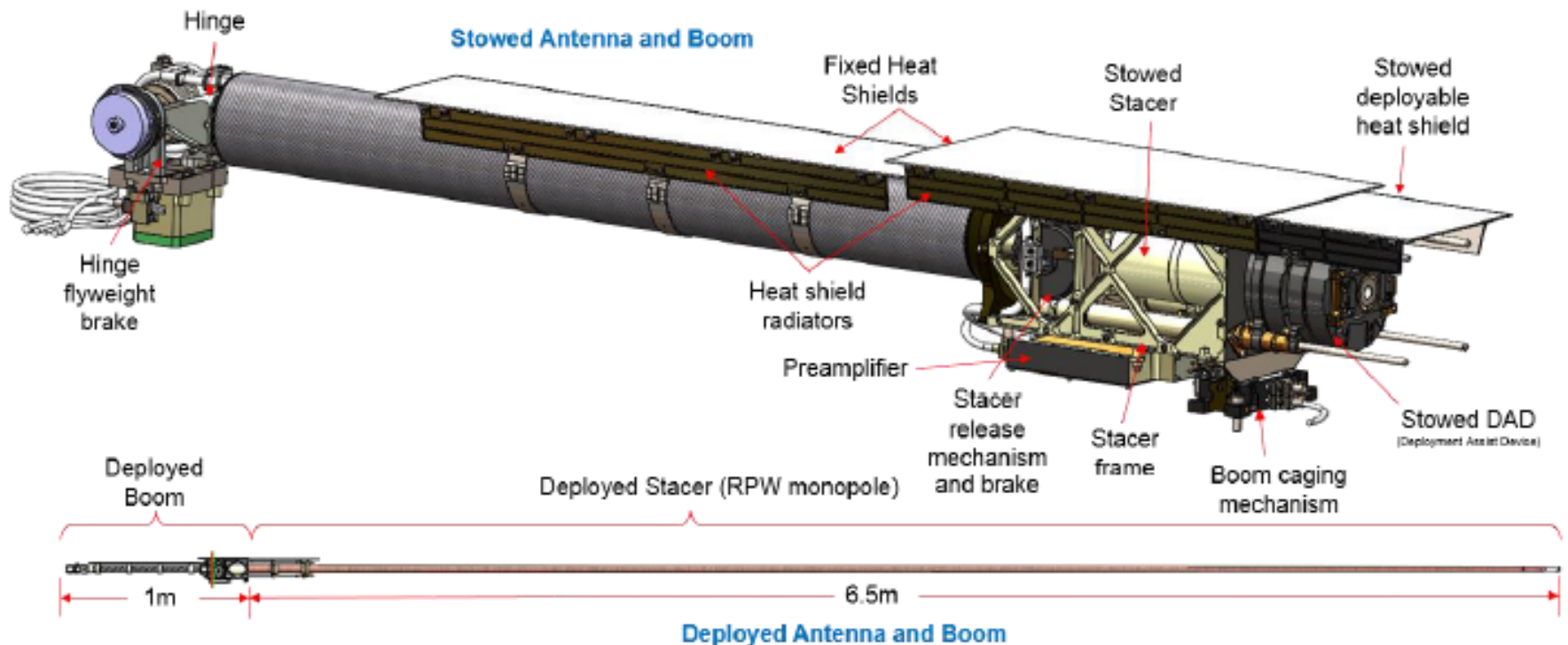
P.DANTO on behalf of RPW ANT Team

SOMMAIRE

- ANTENNA QUALIFICATION
- ADDITIONNAL TESTS ON QM
- FM STATUS

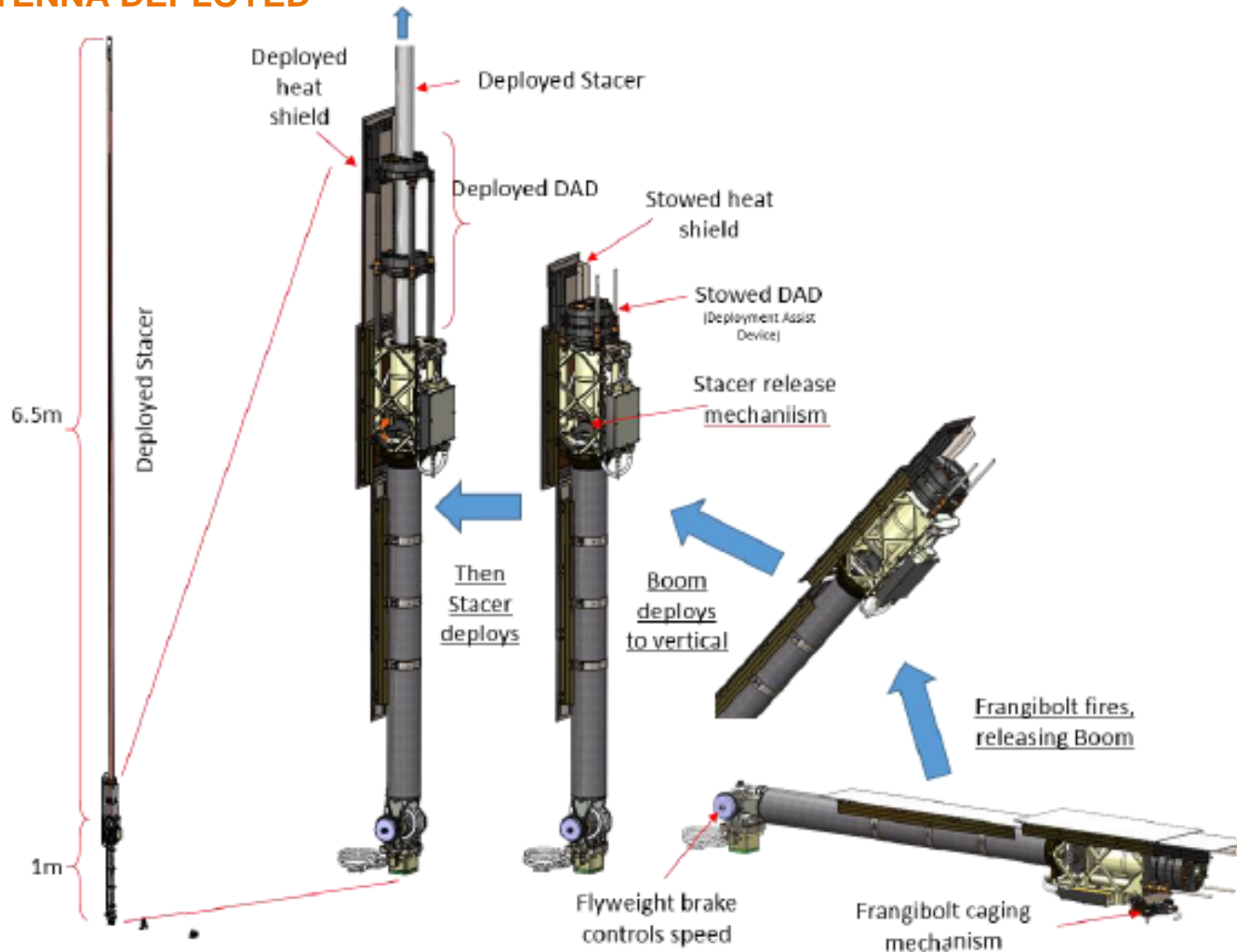
RPW ANT PROGRESS STATUS

RPW ANTENNA STOWED

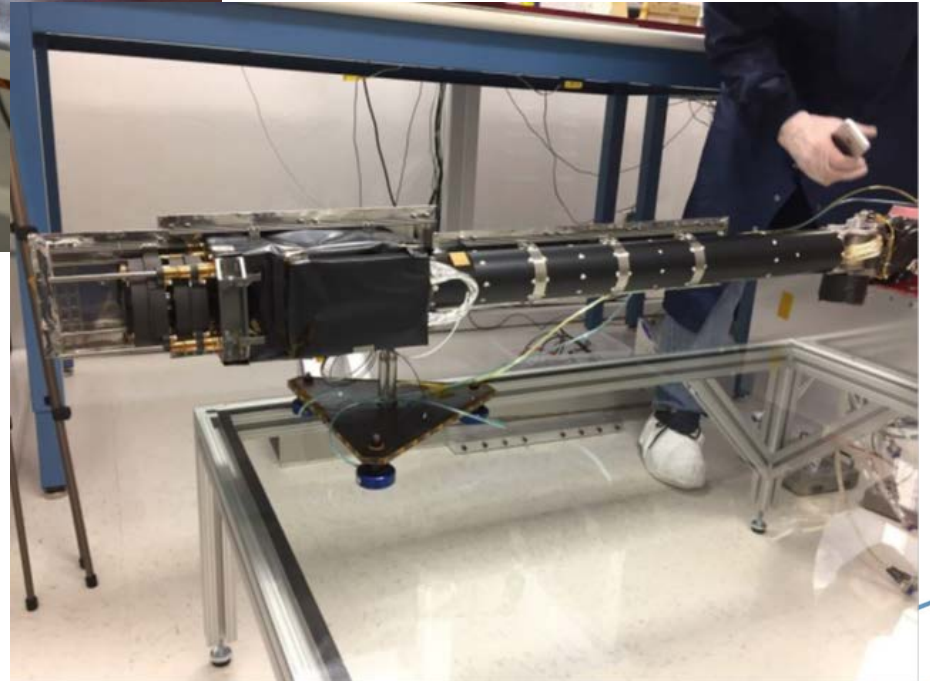
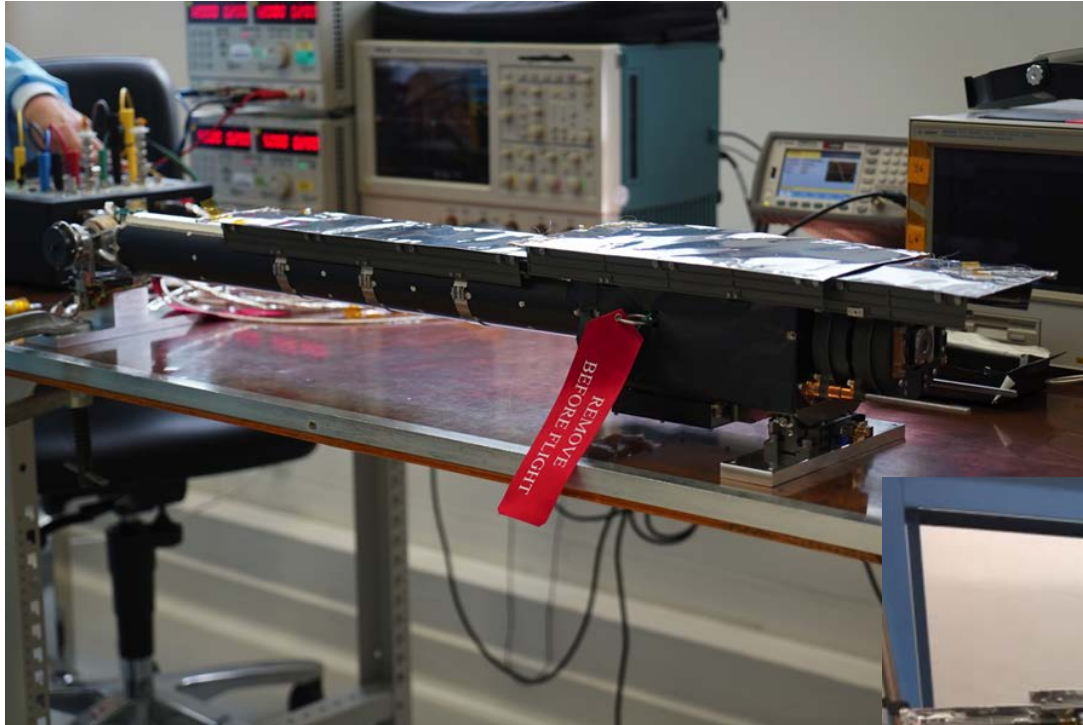


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RPW ANTENNA DEPLOYED



RPW ANT PROGRESS STATUS



RPW ANT PROGRESS STATUS

ANTENNA QUALIFICATION

Qualification sequence

- High temperature (> 300°C) qualification with TTMs (Thermal Tests Models) at sub assembly level for heat shields, heat shields radiators, stacer monopole and carbon fiber tube.
- Environmental qualification at STELLAR's facilities :
 - Pre environment tests
 - Vibrations
 - Shocks
 - Thermal balance and thermal cycling
 - Functional
 - Post environmental tests
- Additional tests at CNES facilities
 - Cold welding tests on the stacer
 - Motorization additional tests
 - Extra cycling to reach cold temperatures
 - EMC
- Performance tests (Figarol)

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ANTENNA QUALIFICATION

Qualification status

| | |
|-------------------------------------|--------------------|
| TTMs | Sept 2014-Dec 2015 |
| Pre-environment performance tests | Dec 2016 |
| •Vibration | Dec 2016 |
| •Shock | Jan 2017 |
| •Tvac balance and cycle | Jan-Feb 2017 |
| •Post-environment performance tests | Feb 2017 |
| •Modal survey | Feb 2017 |
| •Hinge tests | March 2017 |
| •Re-assembly and additional tests | April 2017 |

Environmental Qualification results review (TRB)

End April 2017.

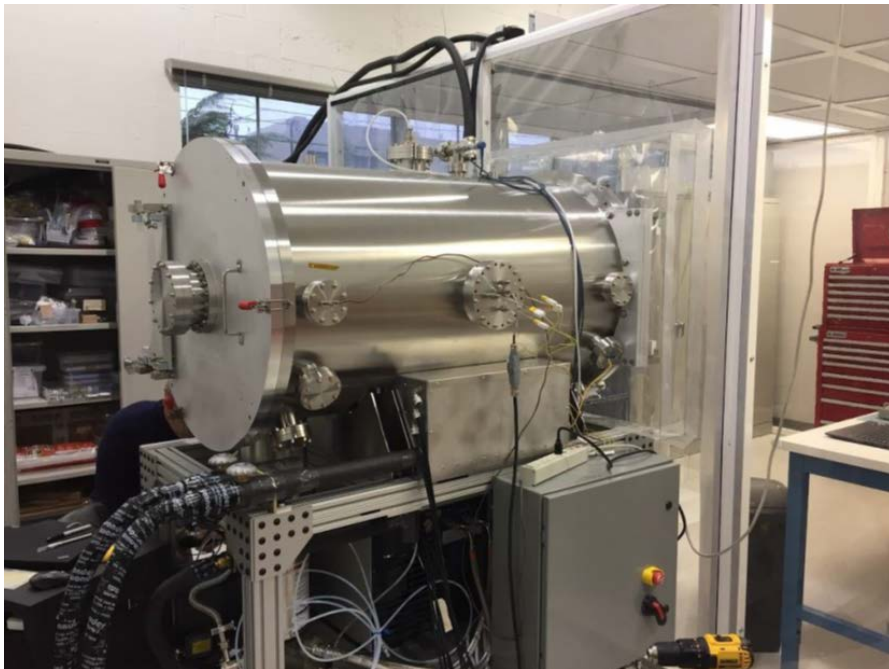
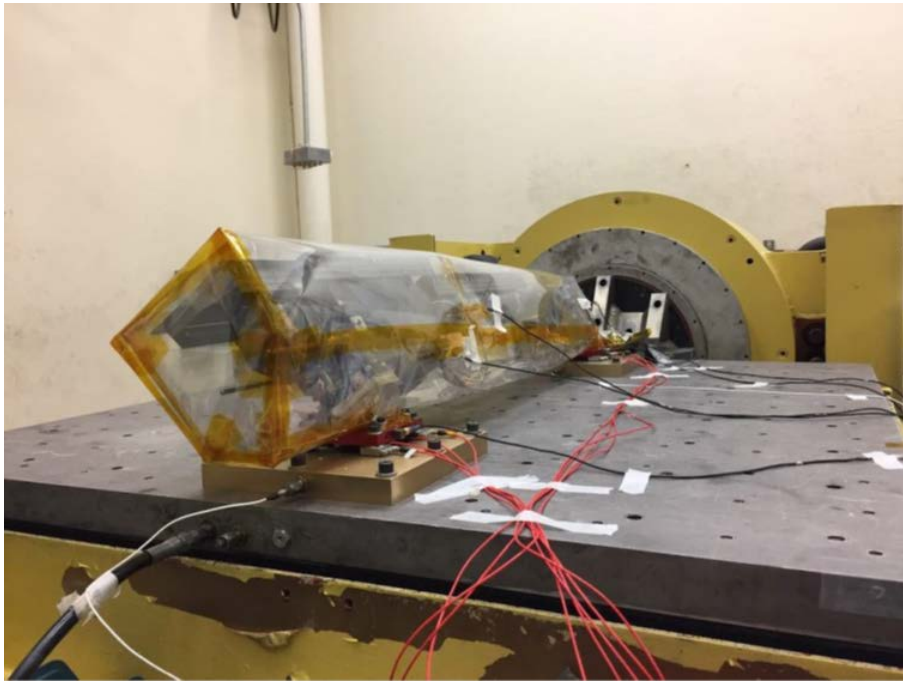
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ANTENNA QUALIFICATION

Environmental Qualification results

- Vibrations, shocks and Eigen mode frequency => OK
- Thermal Balance/Thermal cycling: Even with an optimized design, the antenna will need some additional power allocation (2W per antenna) for the Cold Stowed Non Op. => already discussed with ESA and should be OK, to be confirmed after S/C TVAC.
- Deployments and measurements after environmental tests are successful
- Contamination aspects intensively checked with many lessons learned for FMs.

QM is shipped to CNES for additional tests end of April 2017



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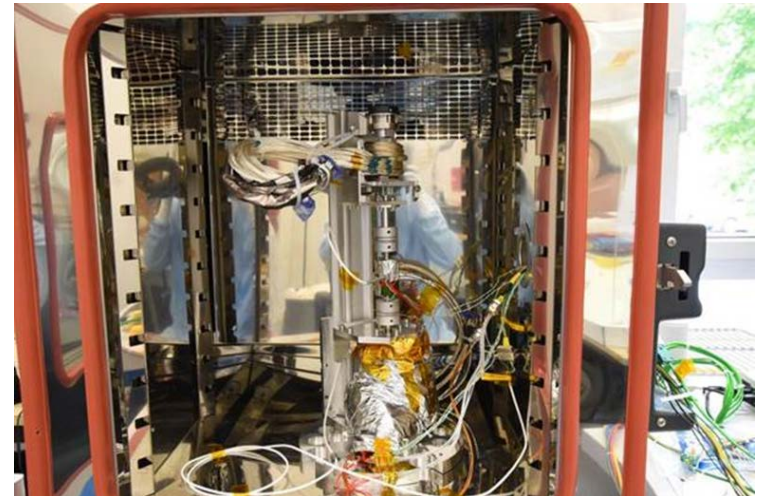
ANTENNA QUALIFICATION

Additional qualification tests : Status

- Cold welding test (May2017) => **No cold welding**

- Motorization tests (May 2017)

⇒ results to be discussed
with ESA but no major issue.



- **On going : extra cycling tests (until end of May)**

- Planned :

June : EMC tests

July : Performance tests (Figarol)

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ANTENNA QUALIFICATION

QUALIFICATION

Qualification process is still on going but the critical tests are successful

- No major issues
- Many lessons learned
- Optimization of the thermal design
- Optimization of the antenna design (minor changes for major results)
- Contamination plan for the FMs built based on observations and measurements.

The antenna design is now frozen and Flight models can be built.

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ANTENNA FLIGHT MODELS

Flight models status

- Part procurement about to be completed
- Assembly should start within 2 weeks
- Schedule is very tight : the delivery is expected 9th September or earlier if possible.
- No margin in STELLAR's schedule.

⇒ We anticipate all we can

⇒ CNES engineer resident at STELLAR's for AQI and mechanism support

⇒ STELLAR's team reinforced (0,25 ETP thermal eng and 0,5 ETP mechanical eng)

⇒ CNES and STELLAR intensively working together to deliver on schedule

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As always, the team makes challenges possible

