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CARIOQA industrial partnerships:

Recap of the two industrial meetings on the “Microwave” and “Laser System”

Industrial partners of the CARIOQA-PHB consortium met twice in February, once in Gradignan and once in Niviano, to advance two critical subsystems. As several technologies are still at a low Technology Readiness Level (TRL), a key objective is to raise them to at least TRL 6 by the end of Phase B.

Workshop in Niervano on the “Micro-Wave” with experts from TAS, CNES and LEONARDO (09/10 February)

Workshop in Gradignan on the “LASER S/System” with experts from TAS, CNES and EXAIL (25th February)

In this context, the Microwave subsystem is one of the three main elements of the instrument and requires strong, coordinated efforts from all partners. The microwave source produces the radio and microwaves frequencies needed to adjust the laser frequencies, to perform the microwave evaporation as well as the master clock of the instrument.

Similarly, the Laser Subsystem (with the Physics Package) is another critical element of the instrument. Its role is to provide suitable laser beams to trap, cool down and manipulate the atoms. It is composed of fibered optical components driven by a dedicated control unit responsible for the nominal operations of all the required functionalities.

As it was done in January in ZARM (for the Physics Package), a face-to-face co-engineering sessions at the Leonardo and EXAIL facilities were carried out in order to identify the requirements and constraints of these equipment in relation to the instrument and the satellite

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“At LEONARDO, we always look with high interest to the possibility to have customers and suppliers visiting our plant to give them the opportunity to see effectively the work we do which involve high technological content, people with high professional skills and high-tech facilities. With a focus to TAS and CNES visit for the CARIOQA project, this gave to the consortium industrial partner the opportunity for a more direct exchange of different project perspectives and a more effective interaction. The exchange of expertise and heritage paved the way for a strong collaboration with the goal to deliver a successful product.“

Maurizio MASSARI - LEONARDO : CARIOQA Program Manager of MWS

“ The visibility of a project’s progress is usually based on the resolution of technical points, but if technique remains the goal, the human dimension is the key to success. This Face-to-face meeting helped understand our reciprocal personal behaviors and backgrounds, and also technical approach by sharing main issues and methodologies for solving them. The visit of LEONARDO plant achieved to have good knowledge on workmanship capabilities. Next engineering meetings through videoconference should be more efficient! ”

Vincent DUBOIS - TAS : CARIOQA Instrument Technical Responsible

“For TAS, at industrial level, it seems always as an evidence that such huge development progress more when all the parties can interact directly and with a total transparency. That’s why, after visiting ZARM in January (for the Physics package) , it’s was important to meet the LEONARDO Team: we could exchange efficiently on all the subjects identified . Again, I recall that strong engineering interactions is required to optimize the Instrument accommodation within the satellite platform and to ensure the best performance of them . It was also the opportunity to visit the LEONARDO Facilities where our future Micro wave will be developed and sure that the industrial test means are ready for CARIOQA”

Thierry JEANNET - TAS : CARIOQA Project Manager

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“Technical discussions were central to this meeting, with an emphasis on designs, reliability, and electronics. The shared understanding of constraints forms the foundation for developing all components. Collaboration with CNES and TAS has proven highly effective, facilitating the development of this complex laser source”.

Aurelien ELOY - EXAIL: CARIOQA Engineer System of LASER

“It has been a dense and highly constructive day—an essential step given the technical challenges and the demanding schedule associated with this project. Bringing technical teams together face-to-face has once again proven to be the most effective approach to addressing these critical issues.
I would like to emphasize the excellent quality and fluidity of the exchanges with TAS, CNES, and our other industrial partners since the beginning of Phase B. This collaborative dynamic will remain a key factor in ensuring the project’s success”.

Cedric MAJEK - EXAIL: CARIOQA Program Manager of LASER

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