PRESS RELEASE

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CIRA
Centro Italiano Ricerche Aerospaziali

Dream Chaser, successful cooperation with Sierra Nevada for future NASA mission

In the last weeks the Italian Aerospace Research Centre (CIRA) performed a test campaign in SCIROCCO Plasma Wind Tunnel facility for the US company Sierra Nevada Corporation (SNC).

The tests have been carried out in the frame of SNC's development program for the Dream Chaser® spacecraft, the vehicle selected by NASA to provide cargo delivery, return and disposal service for the International Space Station under the Commercial Resupply Service 2 (CRS2) contract with launches starting in 2020.

The components under test were full-scale technology demonstrators of the Dream Chaser Thermal Protection System (TPS). The performance of the components was fully compliant with expectations under flight representative conditions at spacecraft atmospheric reentry, and helped the vehicle be one step closer to flight-readiness.

SCIROCCO facility has proved once again to be a world unique test facility for TPS qualification. Thanks to its unrivaled arc heater of 70 MW maximum electrical power, it is able to generate hypersonic jet of up to 2 m of diameter of plasma air at Mach 12 and 10.000 K total temperature, and to accommodate test articles up to 600 mm in diameter.

By means of proprietary high fidelity Computational Fluid Dynamics numerical codes, and deep expertise in the high technological performance of the SCIROCCO test facility, the CIRA Plasma Wind Tunnel team and researchers are capable to reproduce on ground the flight conditions that the spacecraft will experience at atmospheric reentry.

Great satisfaction has been expressed by both CIRA and SNC teams for the excellent performance of the facility and for the effective teamwork in the perspective of further future cooperation.

"The world-class research facilities like SCIROCCO together with the outstanding know-how of CIRA Plasma Wind Tunnel team and researchers - said CIRA Chairman, Paolo Annunziato - *allow our Centre and the Italian aerospace program to be competitive in the international scene and to give its own contribution to the most important global aerospace projects"*.

"SNC is honored to work with international organizations like CIRA. - said Steve Lindsey, Vice President of Programs for SNC's Space Exploration Systems - *In order to have the best-of-the-best, you have to work with the best, and be absolutely confident in your engineering. CIRA has helped us confirm that Dream Chaser will be safe on atmospheric entry, which is a critical component of our unique ability for gentle runway landings."*