

Space - Satellite Testing

National Satellite Test Facility (NSTF)



The National Satellite Test Facility (NSTF) is a new facility in the United Kingdom for the environmental testing of complete satellites and large sub-assemblies. To be operated by RAL Space in Oxfordshire, the new facility is set to be completed by Spring 2021 and will contain the UK's largest single combined facilities for Vibration, EMC / Antenna Range, Acoustic, Mass Property and Thermal testing.

The facility is primarily aimed at testing satellite hardware with payloads up to 7 tonnes and the combined facilities able to fully replicate the conditions and severity of all launch conditions. A pyro-shock test facility is also provided to simulate separation of the satellite from the launch vehicle adapter.

Dynamic Test Data Acquisition Systems

A key component of the test facilities is a high-speed multi-channel Dynamic Test Data Acquisition System. After an international competitive tender involving several specialist companies, a 512 channel **Prosig** system was selected by NSTF. The system comprises 2 x 256 channel sub-systems with four **DATS-hyper12** chassis each, allowing two separate racks to be deployed on in different locations if required. The 24-bit acquisition channels accept Accelerometers, Microphone and Voltage parameters with both IEP and TEDS support.

The DATS-hyper12 is a rack-mount chassis which can be populated with a number of data acquisition and signal conditioning modules. Each rack is stand-alone with its own controller and data storage which



provides an overall acquisition and storage rate in excess of 100kHz. Multiple units can be connected and synchronised together to a common clock signal, acting as a single, high channel-count system. The hyper12 at NSTF will provide the acquired data in a number of industry standard file formats to allow easy export for post-processing by specialist third-part analysis and simulation packages used by different customers.

The hyper12 design philosophy provides for a highly flexible and modular system to suit a wide range of complex testing scenarios to meet the needs of the satellite industry.

About Prosig

Prosig is a UK company specialising in the testing and monitoring of complex machinery, vehicles and structures within the advanced engineering, automotive, aerospace, and industrial sectors. The company offers a wide range of system capabilities, experience and innovation, with a particular focus on advanced vibration and acoustic monitoring and analysis techniques. Prosig is part of Condition Monitoring Group Ltd, an international group, with headquarters in the UK and subsidiaries in three USA, Germany and Italy.

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