


RAL Space

The logo graphic for RAL Space, featuring a stylized white swoosh that curves around a central four-pointed starburst or spark-like symbol.

Accessing R100 Facilities



Science & Technology
Facilities Council

Welcome

Welcome to the STFC RAL Space integration and test facility. The facility has been created to meet the comprehensive and exacting needs of RAL Space customers and collaborators, provide capability for the needs of the next generation of spacecraft and instruments, and to contribute to the growing community of space focused businesses, capabilities and skills located at the Harwell Campus. The building has been designed with the requirements of testing for space in mind. This means that where possible facilities have been optimised for access and location within the building to reduce staff movements and increase access to the facilities customers require.



Facilities available to the Space

Clean rooms

2 x clean rooms 1 class 5 and 1 class 6

The cleanrooms in R100 are designed with the requirements of optical instrument or payload builds in mind, but can also accommodate small satellite build programmes. To this end all of the rooms are ISO Class 5 or ISO Class 6 and are clean enough to be compatible with the room class of the hardware being constructed, integrated or tested.

Specifications for the cleanrooms

- Personnel access from single main changing room
- Equipment access through dedicated airlock
- Floor area of 85m²
- Ceiling height 4m
- Entry door 2m wide and 2.4m tall
- Proximity pass door access control
- ESD Safe tables
- ESD Safe dissipative floor
- Temperature, Humidity and Pressure controlled
- LED lighting giving a typical illumination level of 1000lux
- Dry Compressed air
- GN2 Boil off from main LN2 tank
- Process gas extract system
- UPS Backed Outlets (240V AC, UK 13A 3-pin Plugs)
- Generator Backed Outlets (240V AC, UK 13A 3-pin Plugs)
- Standard Mains Outlets (240V AC, UK 13A 3-pin Plugs)
- UPS Backed 3-Phase 32A Power
- UPS Backed 1-Phase 32A Power
- Fixed and Wireless network connections
- Oxygen depletion alarms
- Independent and calibrated Environmental Monitoring System (EMS) including temperature, humidity, pressure and four airborne particle sizes in multiple locations in each room.

Space Test Chamber Suite (STC)

Each of the STC Suites has a similar layout, it consists of a vacuum chamber with doors either end that open into cleanrooms. At the side of the chamber, linking the two cleanrooms is an additional cleanroom that provides access to the chamber feedthrough ports.

STC Vacuum Chamber 5m

- 5m diameter, 6 m long, with vibration isolation for independent mounting rails within the chamber.
- Temperature range -196°C +120°C
- Vacuum rating 10^{-7} mBar, payload & temperature dependant
- Dedicated Optical Ground Support Equipment (OGSE) room
- Dedicated Electrical Ground Support Equipment (EGSE) room with access from cleanroom or corridor
- Dry pumping system throughout, 180,000l/s (H2O) High Vacuum pumping available
- Molecular contamination control using a cold trap, if required
- Residual Gas Analysis (200amu) using a Quadrapole Mass Spectrometer
- TQCM available

STC Vacuum Chamber 3m

- STC-3 – 3 m diameter, 6 m long, with vibration isolation
- Temperature range -196°C to +150°C
- Vacuum rating 10^{-7} mBar, payload & temperature dependant
- Dedicated Optical Ground Support Equipment (OGSE) rooms

- Direct Electrical Ground Support Equipment (EGSE) access areas
- Dry pumping system throughout
- Chambers open into cleanrooms for contamination control

Customer Room

The Room has desks and seating installed for 6 to 8 people and could easily be reconfigured for more it also has the following services installed

- UPS Backed Outlets (240V AC, UK 13A 3-pin Plugs)
- Standard Mains Outlets (240V AC, UK 13A 3-pin Plugs)
- UPS Backed 3-Phase 32A Power
- UPS Backed 1-Phase 32A Power

Small Vacuum Chamber

- Three chamber suites, each accommodating multiple chambers
- Overall size range 0.5m diameter to 1m diameter
- Temperature range -180°C to +150°C
- Vacuum rating 10^{-7} mBar, payload & temperature dependants
- Dedicated provision for EGSE

Vibration facility

- 3 Axis Sine, Random and Shock capabilities
- 64 Channels of monitoring
- 67 kN Thrust
- 64 mm stroke

Access Control

Access to the facilities is via a proximity based pass system. These can be issued daily or for longer term visitors can be issued for longer periods of time. The same passes can be programmed to admit you into the required areas.

Wireless Network Access

Guests can use the wireless access system in the building through the issuing of access credentials, available from either the main reception or your host. There is 100% coverage throughout the building as well as throughout adjacent buildings and the main STFC site infrastructure. If a customer organisation has an agreement with eduroam (available in 74 territories worldwide) then they can access the network using their own organisations credentials.





For more information please contact:

Graham Toplis – Head of RAL Space R100 Facility Management

Email: graham.toplis@stfc.ac.uk

Tel: 01235 445732

www.ralspace.stfc.ac.uk/RALSpace



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