UNIVERSITY OF Southampton

ISVR Consulting

Consultants in Noise and Vibration

ISVR Consulting
University of Southampton
Highfield Campus
Southampton
SO17 1BJ United Kingdom
Tel: +44 (0)23 8059 2162
Fax: +44 (0)23 8059 2728
Email: consultancy@isvr.co.uk
Web: www.isvr.co.uk

ISVR Consulting

ISVR Consulting provides professional consultancy and applied research studies across the fields of acoustics and dynamics. We are the 'Enterprise Unit' linked to the Institute of Sound and Vibration Research, a research centre within the Faculty of Engineering and the Environment at the University of Southampton.

ISVR Consulting is a team of full-time professional engineers, with supporting technical and administrative staff, who handle most projects in-house. We can also call on the specialist expertise of academic and research staff from the ISVR and other University Departments.

Our clients include a wide range of industries from around the world, public bodies and government agencies in the UK and Europe, and sometimes private individuals. We strive to take a customer-focussed view on the appropriate depth of each study, which may range from a few hours to months or years of work.

Whether the most effective approach to a problem is through testing, modelling or both, we have the facilities to achieve cost-effective results. Our test facilities, detailed overleaf, include a comprehensive suite of anechoic and reverberant rooms, a large product development area and a wide range of test equipment and instrumentation. Our diverse modelling capabilities cover all aspects of design for noise and vibration.

Services

Design and product development for noise and vibration control:

- ships, yachts and off-shore platforms
- cars and other transport systems
- industrial machinery and installations
- domestic and medical appliances
- silencers and enclosures
- active control
- new materials for noise control and damping

Environmental and neighbourhood noise:

- assessment and control of industrial noise
- noise mapping and support for planning applications

Building design:

- acoustic design of schools and halls
- sound insulation testing (Building Regulations)
- specialist buildings requiring low noise and vibration

Prediction and control of ground-borne vibration and noise from railways and industrial machinery

Legal and expert witness representation:

- personal injury and hearing loss
- independent scientific peer review

Hearing protection and subjective acoustics

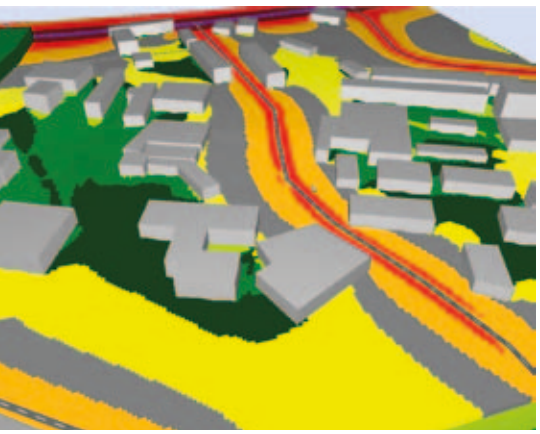
Electro-acoustic and ultrasonic systems

Laboratory services and testing to many standards

Vibration testing and modal analysis

Numerical modelling in acoustics, dynamics, underwater acoustics and ground-borne vibration including specialist FE, BE, SEA and CFD codes

Training and specialist courses



Predicted noise map of the University Highfield campus

Acoustic test facilities

ISVR Consulting operates the ISVR Rayleigh Laboratories, a suite of connected rooms that are suitable for a wide range of standard acoustic tests and research investigations:

- large anechoic chamber (useable volume of 7.33 m × 7.33 m × 5.50 m)
- large and small reverberation chambers (348/153 m^3)
- product development lab (8.5 m × 7.5 m × 3.4 m)

The laboratories are well served with comprehensive control and preparation areas. A wide range of modern, highly specialised instrumentation is available. Single and three-phase electrical supplies at 50, 60 and 400 Hz, compressed air and cooling water can be provided. Mechanical workshop and handling facilities are readily accessible.

A wide range of measurements are offered to national, international and industry standards, including:

- sound power determination to ISO 3741, ISO 3742, ISO 3745, ISO 9614-1, ISO 9614-2, ISO 7779 and ECMA standards)
- measurement of Sound Reduction Indices (Transmission Loss)
- measurement of sound absorption (ISO 354:2003, ASTM E1050, ISO 10534)
- high intensity tests (MIL-STD-810, BS 3G 100)

There are also a range of features that enable many bespoke tests to be carried out, including a quiet high-volume airflow for aeroacoustic testing in either the anechoic or reverberation chambers.

Other test facilities

ISVR Consulting maintains a comprehensive set of equipment for noise and vibration measurement and analysis:

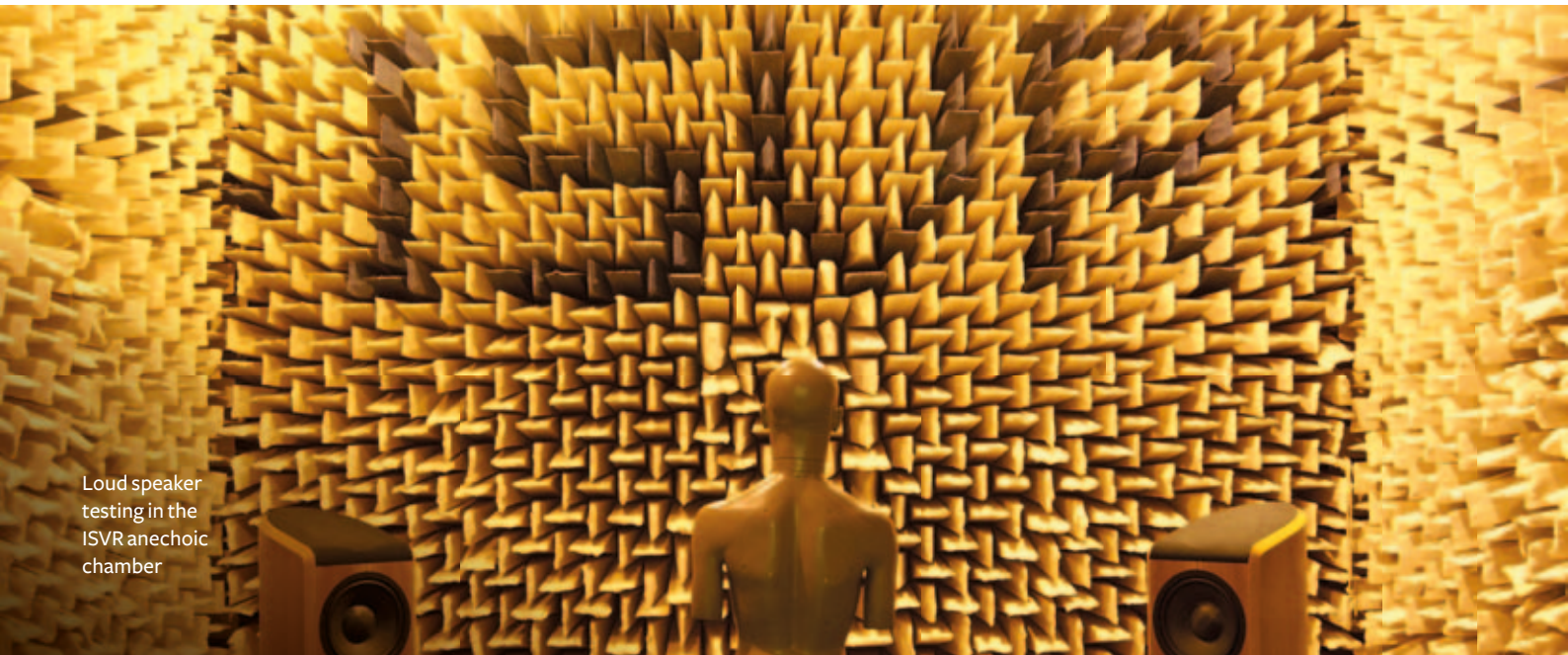
- multichannel data acquisition systems
- software for automotive NVH and digital sound editing
- shakers, instrumented hammers and accelerometer arrays for modal analysis
- source location microphone arrays
- sound intensity measurement probes
- kemar manikin and ear simulators
- sound level meters for environmental and workplace noise
- specialist microphones for very high level sounds
- building acoustics test equipment

Other facilities through the Faculty include large shakers, materials testing rigs, laser scanning laser vibrometers, large and small wind tunnels with PIV and LDV and tanks for underwater acoustics.

Software

With our comprehensive modelling software we can predict and optimise the design and performance of any structure or process. Prediction codes and methods that we have available in-house, through faculty links or through short term leasing include:

- Finite Element modelling of structural vibration using *Hypermesh* and *Ansys*
- CFD modelling using *Fluent* and *Openfoam*
- SEA modelling with *VAOne*
- FE and BE models for acoustics and groundborne vibration.
- *CADNA-A* for environmental noise mapping
- *Matlab*, *Fortan* and *C++* for bespoke prediction models



Loud speaker testing in the ISVR anechoic chamber