



Product Service

Choose certainty.  
Add value.

## Defence Services

Right first time



### **'Right first time ...'**

These are the only words that can be applied to defence related products or services. Our expertise gained from working in the defence industry for over 50 years and our extensive test capabilities ensure that this is the case for all our customers' defence-related products.

We have one of the most comprehensively equipped UKAS accredited facilities in Europe that is both Government and List X Approved. These facilities are in a prime location, designed specifically to meet the demanding requirements of 'new generation' test standards, including the UK Defence Standard for Electromagnetic Compatibility (EMC), DEF STAN 59-411, and DEF STAN 00-35 for Environmental Testing. We also address the American Standards MIL STD 810 and 461 plus SPE-J-1000.

## Consultancy & Pre-Test Services

### **Requirement Management**

We recognise that in some circumstances you may need help in rationalising the many requirements placed on you. Our core group of experienced consultants, augmented by a network of consulting partners, senior managers and engineers, will act quickly to identify solutions. We have had considerable experience in

reviewing complex compliance requirements of major test programs, such as SKYNET, BOWMAN and FALCON. The focus is always to manage the risk, minimise the amount of testing required and provide evidence and argument to demonstrate compliance through meaningful testing.

### **Programme Management**

TÜV Product Service can help with creating management, control and test plans which will provide authoritative guidance on the selection of standards, test methods, limits and performance criteria. These plans will demonstrate to your clients a structured programme covering the end users contractual requirements.

### **Training Courses**

Knowledge Transfer in the form of training courses is an effective way of updating and improving skills and knowledge. Our consultants and engineers possess a wealth of knowledge and experience which they can impart to your employees. Our training courses include preparing for design and test in EMC, RADHAZ and Environmental simulation. All our courses can be tailored to suit your specific requirements and can be delivered at our dedicated training facilities or at your own premises.

# Certified Product



## TEMPEST

Independent TEMPEST testing is required to ensure that compromising emissions do not occur from cryptographic and other equipment processing classified information.

We are one of three UK Laboratories certified by CESA from Product TEMPEST Testing, our test facilities are accredited for TEMPEST Certification and TEMPEST Production Assurance Testing (TPAT) by the UK Technical Authority CESA at GCHQ, Cheltenham.

We are the only Commercial Laboratory certified by CESA from First of Type Platform TEMPEST.

We are able to accommodate items from desk-top equipment through to vehicle mounted installations and can test in accordance with NATO TEMPEST standards.

## ElectroMagnetic Compatibility (EMC)

TÜV Product Service is one of the world's largest independent providers of Electromagnetic Compatibility (EMC) / Electromagnetic Interference (EMI) testing and qualification services up to platform level for the defence industry. We are capable of testing products from small units to large, heavy and complex defence products for both electromagnetic immunity (the ability of a product to accept disturbance) and emissions testing (measuring the level of disturbance produced by the product).

### Capability

We are fully equipped to perform every EMC test in DEF STAN 59-41 & MIL STD 461 and are able to deliver test reports within 5 working days.

### Capacity

We have 9 chambers, 4 specially equipped for military applications with 100A/phase filtered mains supplies, along with 60Hz and 400Hz supplies up to 32A/phase. Our 2 largest military chambers can accommodate vehicles, and have flush-mounted floors which are accessed through 4m doors.

We offer both attended and unattended testing. If you need to support your product during testing then we will work with you in attendance. If you do not have the resources to support your product then we can conduct the test programme in your absence, keeping you regularly informed of progress via a dedicated project manager.

### In-Situ

TÜV Product Service also has a dedicated EMC site test team, equipped with portable test equipment able to travel to sites worldwide to conduct in-situ testing. This can range from compliance testing in accordance with test standards to ship's trials, RADHAZ trials, site surveys and interference investigation.



## Environmental

We have been providing environmental testing services (shock testing, vibration testing, climatic testing) to the defence industry since 1953 covering many projects for Land, Sea and Air.

Occupying an area of 1200m<sup>2</sup>, our environmental laboratory has a unique combination of state of the art chambers that are continuously monitored by independent computer controlled data collection systems, together with the latest in mechanical and package testing facilities.

We are able to offer the following services:

### Climatic Testing

- 11 combined temperature and humidity chambers
- Temperature range from -65°C to +200°C
- Humidity range from 5% to saturation
- Largest chamber 6m x 5m x 4m
- 5 high / low pressure chambers
- 3 chambers capable of rapid temperature change greater than 5°C / minute and 1.5m x 1.5m x 1.5m size
- Salt fog chamber
- Ingress protection (IP) - water immersion and high pressure hot water
- Icing
- Highly Accelerated Life Testing and Highly Accelerated Stress Screening (HALT HASS)

### Mechanical Testing

- Sinusoidal, Random, Sine on random, Swept sine on random, Gunfire, Shaker induced shock, including SRS (Shock Response Spectrum)
- 2 large shakers with 160kN thrust - each has floor mounted interchangeable slip tables with largest 1.5m x 1.5m and 4 tonnes external load support
- 1 medium shaker 90kN thrust - combo system with 1.2m x 1.2m slip table
- 1 small shaker 36kN thrust - combo system with 0.85m x 0.75m slip table
- Hydraulic shaker - 60kN thrust - 100mm displacement, 2-200Hz with 2.2 x 1.2m table, 1300kg payload capacity
- 2 free fall shock machines - with largest 2.2m x 1.2m table, 1300kg payload capacity

### Package Testing

- Bounce
- Bump
- Bending
- Racking
- Compression – 15 tonnes, 1m x 1m area
- Freefall – 12m
- Inclined Plane – 10m/s with 1.5m x 1.5m braked table, 2 tonne payload, up to 30g, 18m/s half sine
- Tilt Platform - 1.2m x 1.2m table with 90° rotation, 1 tonne payload

### Fixture Design Service

We can provide a vibration fixture design service for products of any size and complexity. We have designed many hundreds of jigs over the years and we have a stock of 'popular' fixtures, which we can sometimes modify to reduce the fixture cost.