Thermal & Climatic Testing

Thermal & Climatic Chambers

Large range of chambers for product reliability evaluation under constant or variable climatic conditions.

13 **Thermal & Climatic Chambers**

Supplier: WEISS Technik

Models: VT4010 • VT4060 • DU22 • VC4034 • VCS3 7034 5 • VC3 4100 • ClimEvent C 1000 40 3 • C 340 70 5 • ClimeEvent C 480 70 11 • SB500 • ShakeEvent C 1200 70 15 • LabEvent T 110 70 3

Specifications	
Temperature	-72°C to +220°C
Relative Humidity	10 to 98 %
Temperature Rate	2 to 15 K/min
Interface & Datalogging	• 8 digital I/0 24V DC 0.5A • DUT monitoring possible
Useful Dimensions	from 110 to 1200L
Applicable Norms	• ASTM B 117 • BS 2011 • DIN40046 - DIN EN 60529 - DIN EN ISO 6270... • ESTI EN 300019-2-4... • IEC 60068 - IEC60721 • ISO 16750-4 • ... *For more information regarding other applicable norms, please contact us*

Thermal & Climatic Testing

Thermal Ovens

Large range of ovens for product reliability evaluation under constant or variable thermal conditions.

5 Thermal Ovens

Supplier: Memmert

Models: UF260 • UF260+ • UF450 • UF450+

Specifications	
Temperature	up to 300°C
Temperature Rate	up to 30 K/min
Temperature Options	Programmable temperature profiles
Interface & Datalogging	DUT monitoring possible
Useful Dimensions	260 to 450L

Thermal Shock Testing

Testing services

Multiple large-size and fully automated dual-zone thermal chambers for product performance and reliability testing under repetitive thermal shock.

5 **Thermal Shock Chambers**

Supplier: WEISS Technik

Models: VT 7012 S2 • VT 7012 S3 • VT3 7012 SE • ShockEvent T120 V2

Specifications	
Temperature	-80°C to +70° C +50°C to +250° C
Temperature Rate	6 to 14 K/min
Transition Time	< 10 seconds
Interface & Datalogging	DUT monitoring possible
Useful Dimensions	120L per stage
Applicable Norms	• IEC 60068-2-14 Na • MIL-STD 810G Method 503.5 • MIL-STD 883K Method 1010.9 • IEC 60068-2-1, Test A • JEDEC JESD22-A119 • MIL-STD 810G, Method 502.5 • ESTI EN 300019-2-4, Test Ab /Ad • ... *For more information regarding other applicable norms, please contact us*

Environmental Testing

Salt Spray

Product evaluation for resistance to contaminants, dust and liquid intrusion (IP6, IPX9K, etc.) combined with thermal shock or immersion. Chemical degradation and corrosion testing in salt spray atmosphere.

2 **Corrosion Benches**

Supplier: WEISS Technik

Models: SSC450 • SaltEvent SC UKWT 1000

Specifications	
Temperature	RT to +50° C
Humidity range	20 to 98%
Options available	• Profiles programmation • ON/OFF Cycling • Direct spraying on the test samples
Interface & Datalogging	DUT monitoring possible
Useful Dimensions	450 to 1000L
Norms available	• ASTM B 117 (2011) • DIN EN ISO 9227 (2017) • DIN EN ISO 6270-2 AHT (2016) • DIN IEC 68 part 2-11 (1982) • MIL STD 810 G, Meth.509.4 (2008) • ... *For more information regarding other applicable norms, please contact us*

Environmental Testing

Environ-mental IP

Product evaluation for resistance to contaminants, dust and liquid intrusion (IP6, IPX9K, etc.) combined with thermal shock or immersion. Chemical degradation and corrosion testing in salt spray atmosphere.

3 **IP Equipment**

Supplier: WEISS Technik

Models: ST 1000 U • SWT 1000 • TS60/ 0-180AS

Specifications	
Available Options	• SWT 1000: Rotating table R/L rotating • TS60/0-180AS: air up to +180°C, water between 0 and +5°C
Programmation	• Profiles programmation • ON/OFF Cycling
Interface & Datalogging	DUT monitoring possible
Useful Dimensions	200 to 900 L
Available Norms	• suitable for IP6 with Arizona dust A2 • suitable for IPX9K • suitable for IP7

Vibration Testing

Testing services

Product evaluation for mechanical shock, 3-axis sine or random vibration up to 80kN, combined with climatic chamber.

2 **Vibration Benches** **2** **Dedicated Climatic Chambers**

Supplier: LDS

Models: V726 • V8900

Specifications	
Vibration Force	7 kN to 80 kN force
Profile Type	• Random • Sinus • Shock • Resonance • Sinus dwell
Usable frequency range	5 Hz to 3000 Hz
Temperature	-70° C to 180° C
Optional Climatic Conditions	paired with WEISS TECHNIK SB500 and ShakeEvent C1200 70 15
Useful Dimensions	500 to 1000 L

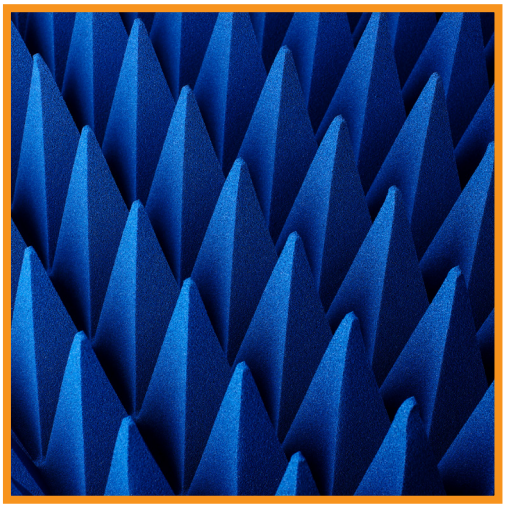
Electromagnetic Compatibility Testing

Testing services

Full electromagnetic compatibility testing (EMC) for emission, immunity, radiated, conducted and electrostatic compatibility against established automotive and industrial standards like CISPR25, CISPR16, ISO11452.

Shielded Anechoic Chamber

Instrumentation for Immunity, Emission & Electrostatic Discharge



Supplier: Rohde & Schwarz • Siepel

Models: HERA/ CHRONOS 3F Amplifier, antennas, ESD gun

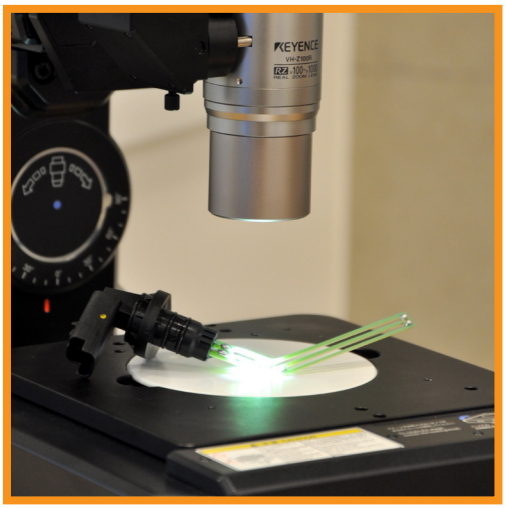
Specifications	
Anechoic chamber	7.5 x 4.2 x 3.0m
Norms	• Emissions CISPR 25, CISPR 16 • Immunity ISO 11452-2
Chamber frequency range	DC - 18 GHz
Signal Generators and Amplifiers	• up to 6 GHz • 150 V/m
Immunity testing	• BCI (ISO 11452-4) • Magnetic field (ISO 11452-8) • Pulse test (ISO 7637-2) • ESD (ISO 10605) • Stripline 90 Ω
Emission testing	• EMI receiver ESR7 (6GHz) • Bi-conical, Log-Per, Horn antennas
Fibre optical interfaces	Analog, LIN, CAN-FD
Table	2.5 x 1m ground plane
Monitoring	Optical shielded camera, EMC 32

Material Analysis

Testing services

Plastic and metal materials performance testing and analysis, including failure analysis, based on fully equipped laboratory incorporating sample preparation, testing and analysis equipment

1 X-Ray **1** 3D Microscope Material Characterization



Suppliers: PHOENIX - Keyence - Erichsen

Models: PCBA Inspector 100 • VHX 5000 • Unimat 052 S

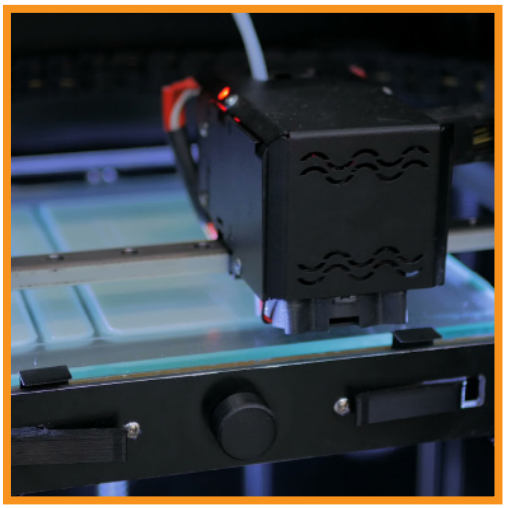
Specifications	
Sample Preparation	• Cast/ Vacuum resin molding • Polishing machine • Micro cut-off saw • Microtome
Characterization	• Tensile testing machine 5kN (tensile, bending, torsion)
Analysis	• X-ray pcba inspector 100 (100kV, 5 axis) • Digital 3D microscopy and topography VHX5000 (magnification 5x-50x + 100x-1000x)

3D Printing

Testing services

Rapid prototyping facility with 3D printer for plastic materials to support testing, product development and fixtures for small scale production.

1 **3D Printer**



Supplier: Stratasys

Model: Object30Pro

Specifications	
Accuracy	0,1 mm varies depending on part geometry, size, orientation, material and post-processing method
Minimum Layer Thickness	28 microns
Model Materials and Support	• Rigid Opaque: VeroWhitePlus™, VeroBlackPlus™, VeroGray™, VeroBlue™ • Transparent: VeroClear™ • Simulated Polypropylene: Rigur™ and Durus™ High Temperature • SUP705 gel-like photopolymer support
Tray Size	300 x 200 x 150 mm