

„AUCOTEAM – The Accredited Test Laboratory for Environmental Simulation and Reliability Tests“

an associated partner of the GRW – Cooperation network:
“Electronics – Relevant Subjects and Spheres of activity in the Region Brandenburg-Berlin”



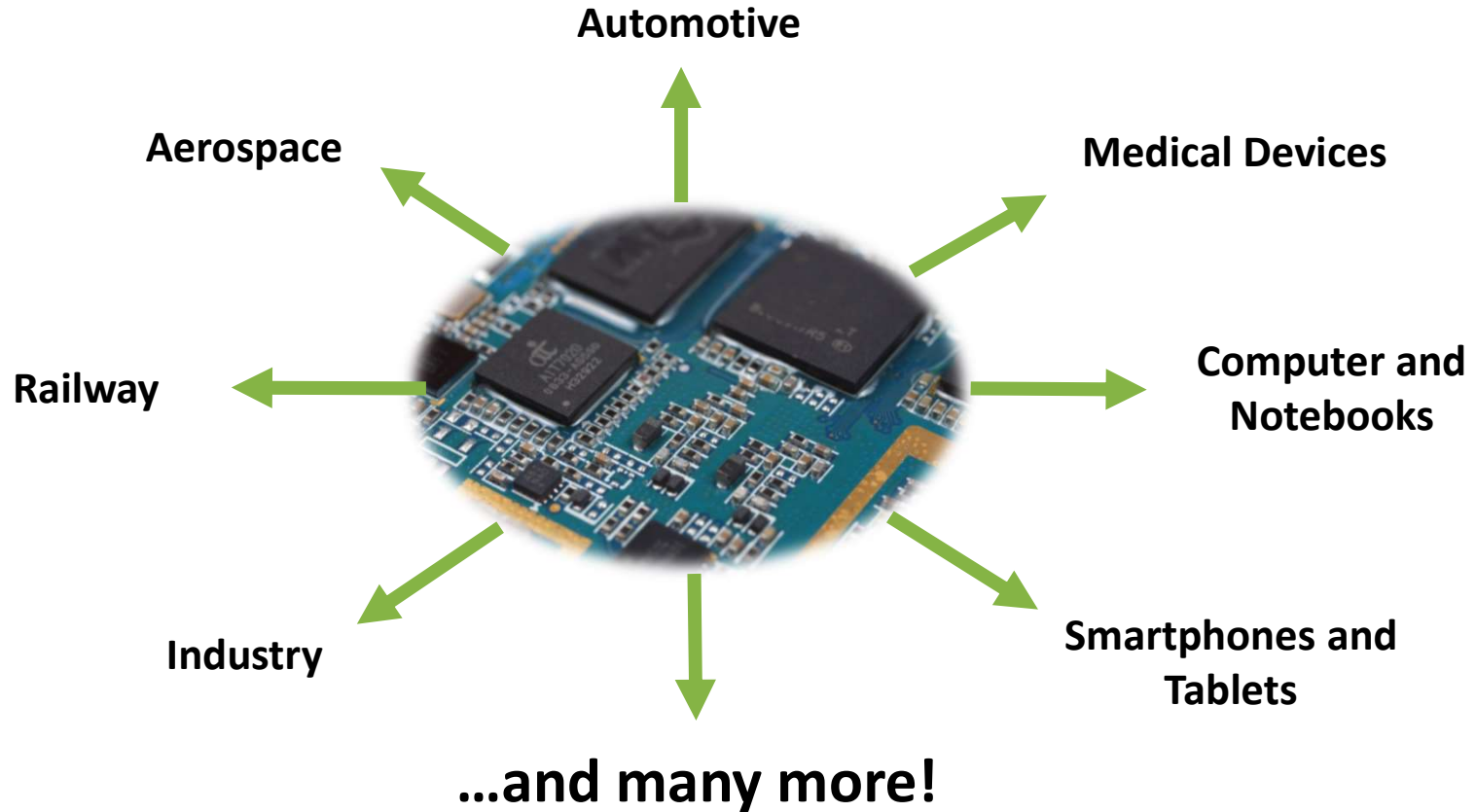
Network Manager:



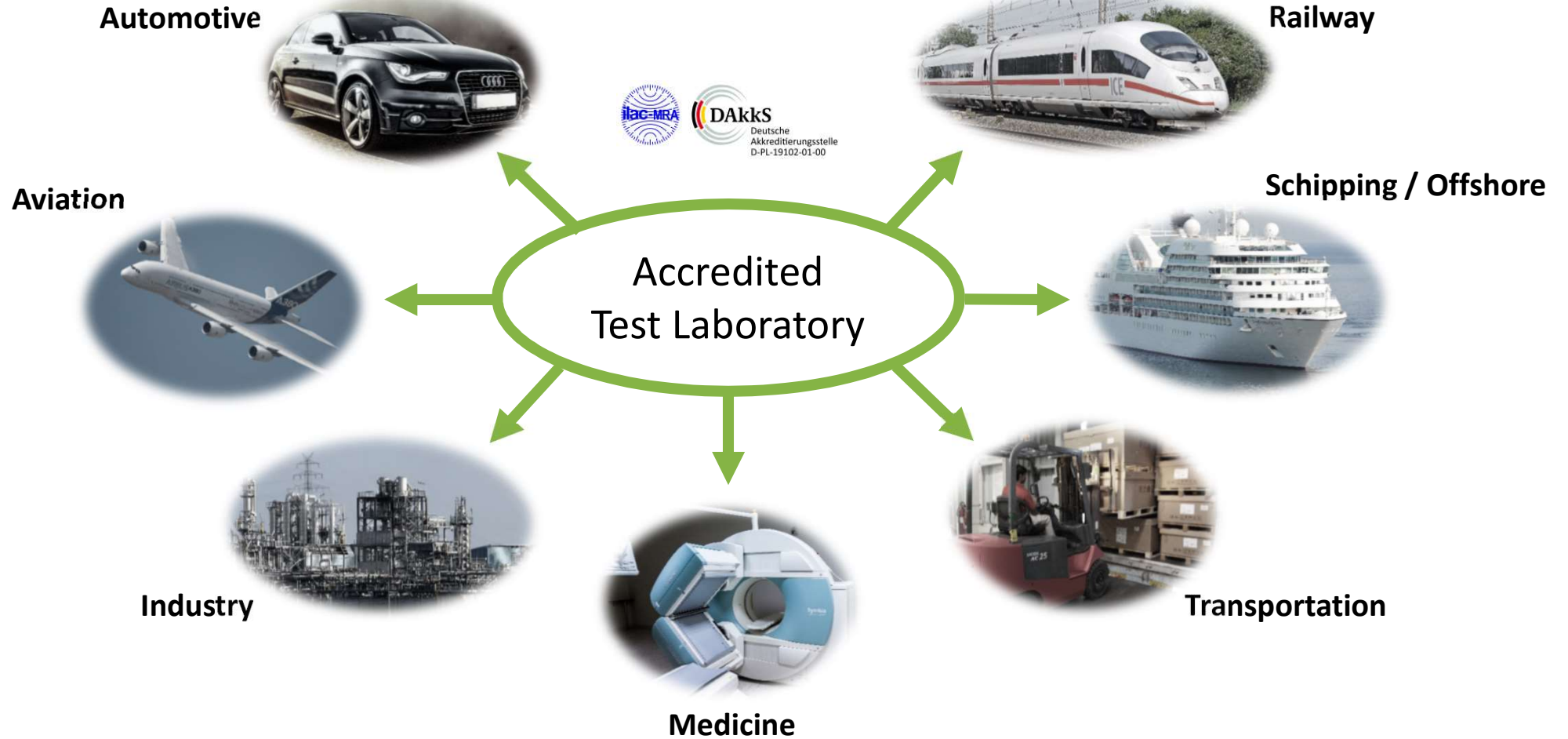
Network is Government-funded with Capital of the Federation and of the German State Brandenburg within the Scope of common Task: “Improvement of Regional Economic Structures – GRW Infrastructure”



Microelectronics and its Applications

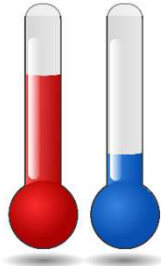


Sectors of Environmental Simulation

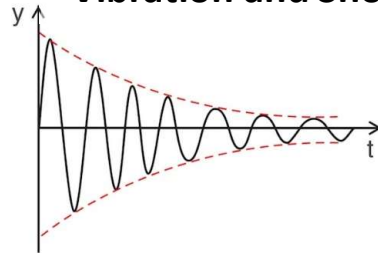


Environmental Simulation and Tests

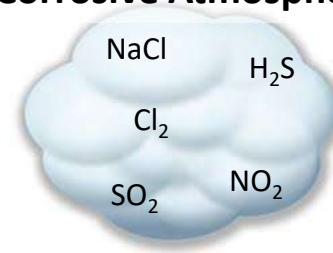
Temperature and Climate



Vibration and Shock



Corrosive Atmosphere



Degree of Protection



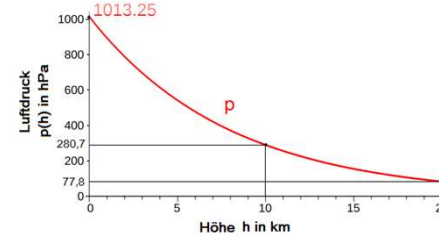
Temperature Shock with Splash Water / Immersion



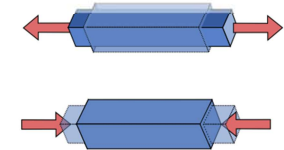
Artificial Weathering and Solar Radiation



Low Pressure



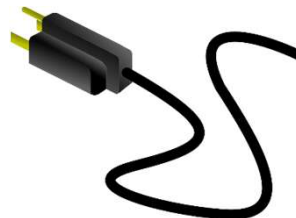
Compression-Tension Tests



Electrical Tests



Connector Tests (HV/LV)



Test Bench Construction



Measurement and Evaluation



Temperature and Climate Tests

- › Cold
- › Dry Heat
- › Temperature Change (Air-to-Air)
 - slow
 - fast (shock)
- › Temperature Change (Liquid-to-Liquid)
 - with Oil
- › Damp Heat
 - constant
 - cyclic
- › Special and Customized Tests
- › 65 Climate Chambers
- › 9 Temperature Shock Chambers



Mechanical-Dynamic and Combined Tests

- › Vibration
 - Sinusoidal
 - Multi-Sine
 - Broadband Random
 - Sine over Random (SoR)
- › Mechanical Shock
 - Half-Sine
 - Sawtooth
 - Trapeze
- › Combined Climate and Vibration Tests
- › 5 Shakers with Climate Chambers
 - 4 kN vertical only
 - 15 kN with sliding table
 - 35 kN with sliding table
 - 55 kN with sliding table
 - 74 kN with sliding table and heavy load platform



Control Room



4 kN, 35 kN, 15 kN and 55 kN Shaker



74 kN Shaker



Corrosion Tests

- › Salt Spray Atmosphere
 - continuous
 - cyclic
- › Condensation Atmosphere
 - with constant humidity
 - with alternating humidity and air temperature
 - with alternating air temperature
- › Complex Cyclic Climate-Corrosion Alternating Tests
- › Tests with Special Road Salt
- › 5 Salt Spray and Corrosion Test Chambers
2 Condensation Water Test Chambers



Corrosion Test Laboratory



**Climate-Corrosion Alternating Test Chamber
SaltEvent SC/UKWT 1000 (WEISS Technik)**



Degree of Protection (IP and IK Code)

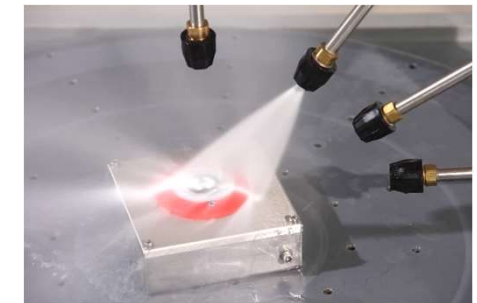
Protection Against Foreign Objects and Access

- › acc. DIN EN 60529: IP1X ... IP6X
- › acc. ISO 20653: IP1X ... IP6KX
- › other acc. MIL-STD, RTCA ...



Protection Against Water

- › acc. DIN EN 60529: IPX1 ... IPX9
- › acc. ISO 20653: IPX1 ... IPX9K
- › other acc. JIS-STD, CLAAS ...



Protection Against External Mechanical Loads

- › acc. DIN EN 62262: IK01 ... IK11



Artificial Weathering and Solar Radiation

Artificial Irradiation and Weathering

- › acc. DIN EN ISO 4892-3
- › Material testing for plastics
- › Radiation source: UV fluorescent lamps
- › Spectral range: 290 nm to 400 nm



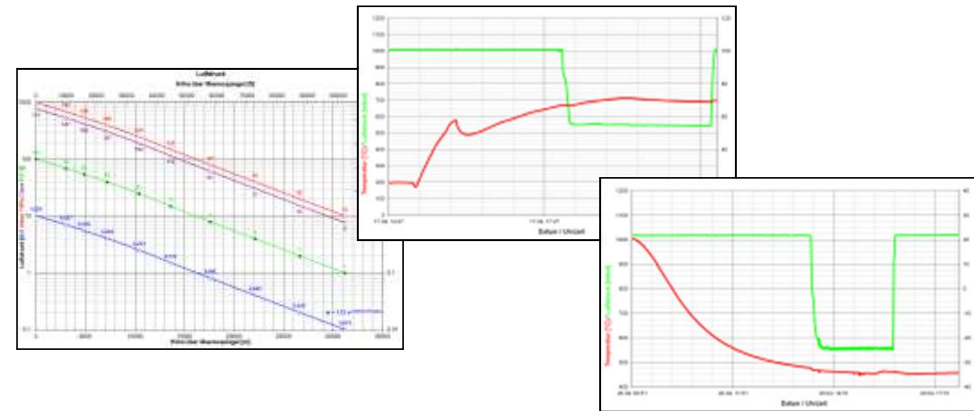
Solar Radiation

- › acc. DIN 75220
- › Aging of automotive components
- › Radiation source: Metal halide emitter
- › Spectral range: 280 nm to 3000 nm



Low Pressure Tests

- › Flight Altitude Simulation
- › Low Air Pressure
- › Combined Tests
 - Cold and Low Air Pressure
 - Dry Heat and Low Air Pressure



Compression-Tension Tests

- › Compression/Tension up to 100 kN
- › Force or position controlled
- › test speed from 0.001 mm/min up to 1500 mm/min infinitely adjustable
- › tests with cyclic load possible
- › control and evaluation via software
- › results evaluation in tabular form
- › evaluation e.g. by means of a force-displacement diagram
- › with contact monitoring



Compression-Tension Test Device



Electrical Tests



- › Insulation resistance (up to 5 kV_{DC})
- › Dielectric strength (up to 5 kV_{AC})
- › Protective conductor / leakage current
- › Many other electrical tests...



Dielectric strength



Insulation resistance

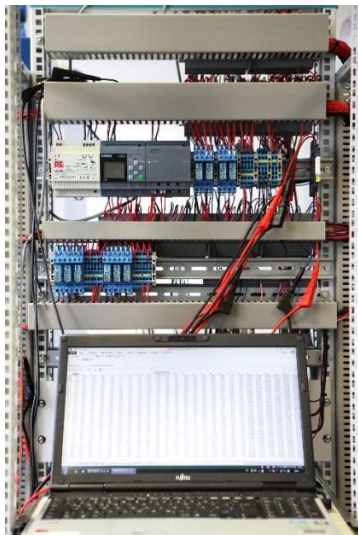
Control and Monitoring

- › Control with HV and LV
- › Cooling water supply
- › Voltage, current and resistance monitoring
- › Control with CAN, LIN, FlexRay
- › SENT data logging

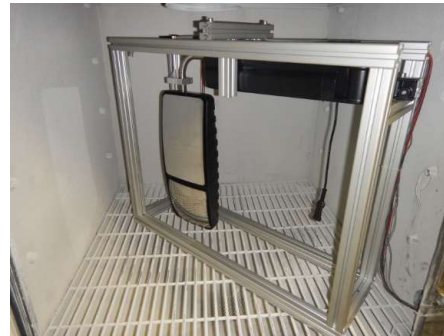


Test Bench Construction

- › Special and customized test bench
- › Endurance test benches
- › Compact test racks



Measurement test rack



Folding actuation of an agricultural outside mirror



Roller test bench (medical technology)



Snap-action switch test bench (energy and industry)



Actuation test bench for control panels (dryer)



Test bench for e-mobility components



Test bench for electric water pumps

What else do we test...



- › Tests for chemical or media resistance



- › Thermographic examinations by means of a thermal imaging camera



- › Visual inspection using a stereo microscope and digital image processing

and much more...



Thank you for your attention and interest!

