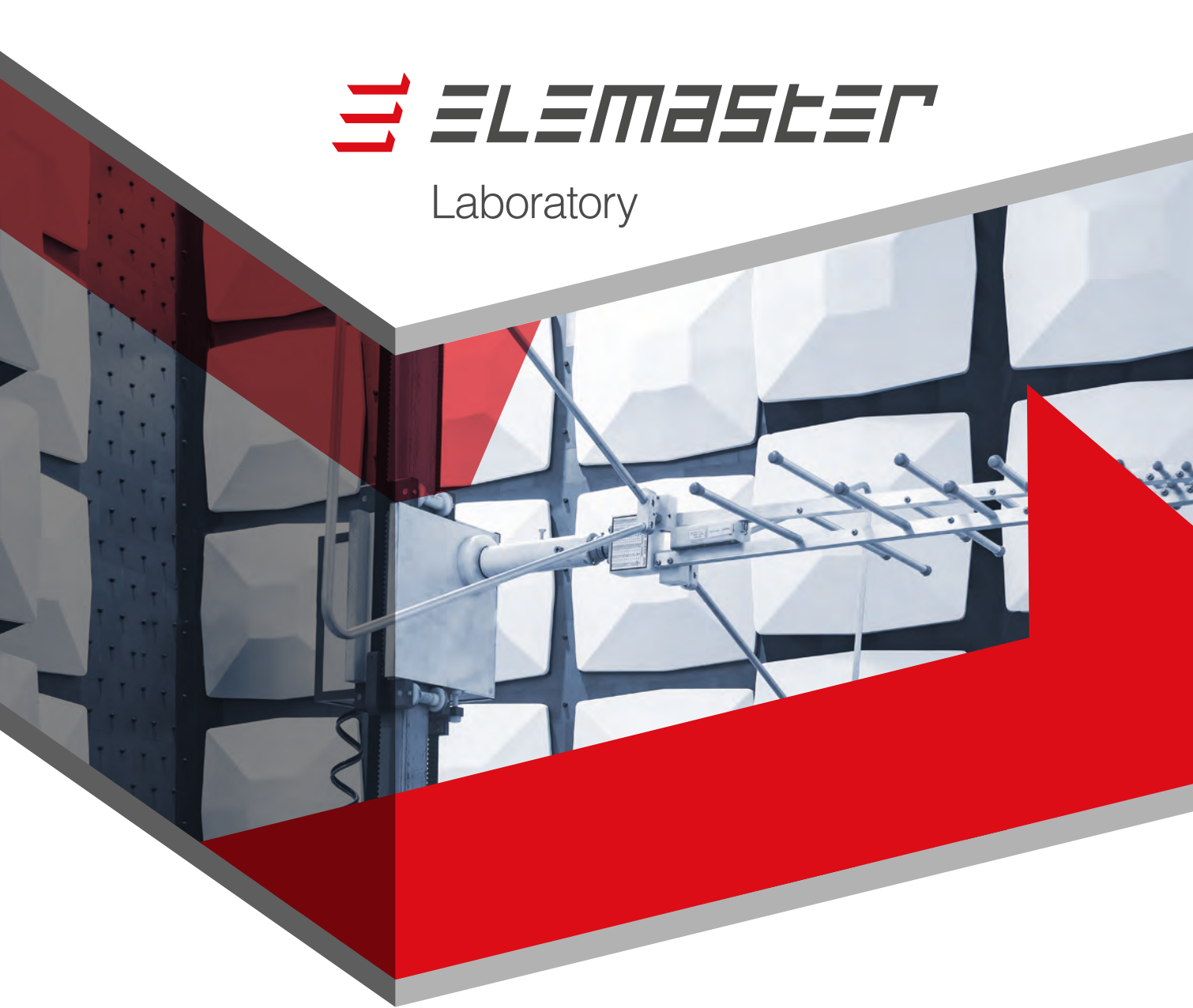




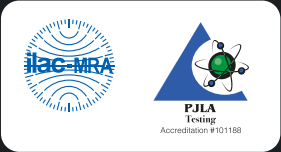
Laboratory



ELETECH TEST LABORATORY

ELETECH CERTIFICATIONS & ACCREDITATION

				
MEDICAL & HEALTHCARE	RAILWAYS & TRANSPORTATION	INDUSTRY & ENERGY	ENVIRONMENTAL	LABORATORY
ISO 13485:2021	ISO 22163:2023	ISO 9001:2015	ISO 14001:2015	*ISO/IEC 17025:2017



ELEPRINT LABORATORY

ELEPRINT CERTIFICATIONS & ACCREDITATION

			
RAILWAYS & TRANSPORTATION	INDUSTRY & ENERGY	AVIONICS & AEROSPACE	
ISO 22163:2023	ISO 9001:2015	AS/EN 9100:2018	

*EMC, climatic, insulation, vibration and shock tests
accredited ISO/IEC 17025:2017

LABORATORY TEST SERVICES

Elemaster Test Laboratories stands as a reference partner for companies requiring accurate and internationally recognized verification of their products. Thanks to our know-how, we offer comprehensive engineering services, supported by certified quality systems for the industrial, railway, and medical sectors. The strengths of our services are:

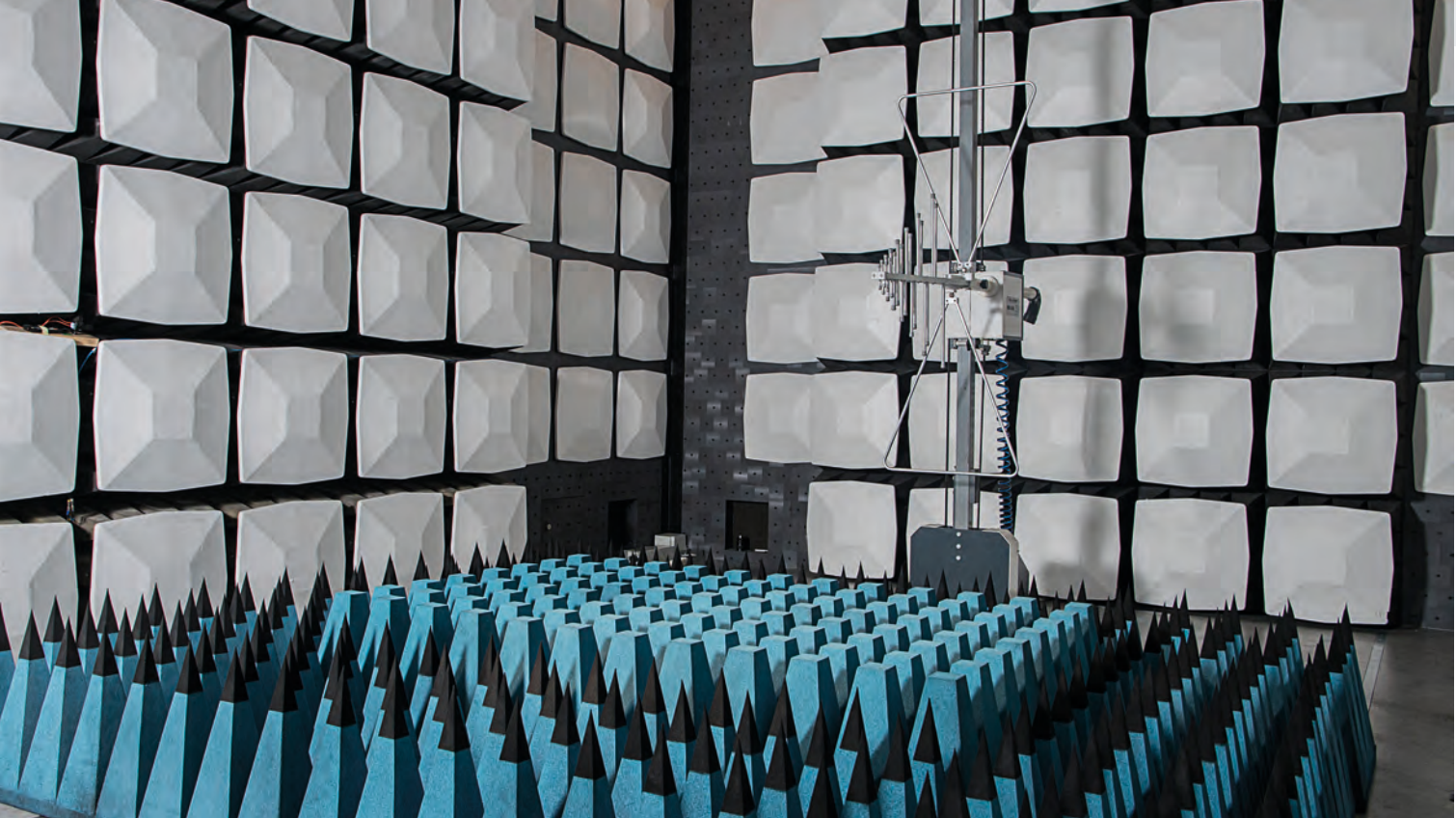
- Proven experience in complex applications
- Highly skilled technical team providing end-to-end customer support, from test planning to result interpretation
- Strategic location close to engineering hubs
- Flexibility and fast response to customer projects, positioning us as a true time to market accelerator.

Eletech Labs provide services related to **EMC, radio, safety, EMF, climatic and mechanical** tests:

- Definition of directives and technical standards applicable to the product
- Definition of the test plan
- Execution of tests in accredited laboratories
- Release of test reports
- Supply of technical documentation
- Support for voluntary product certification and homologation
- Legislative updates

ILAC laboratory accreditation (ISO/IEC 17025:2017 for EMC, climatic, insulation, vibration and shock tests) and certifications (**ISO 9001:2015, ISO 22163:2023, ISO 13485:2021**) guarantee technical competence, impartiality, and rigorous quality in all measurement processes, ensuring test results recognised worldwide.

Environmental certification (**ISO 14001:2015**) clearly indicates our commitment to environmental protection and rational use of resources.



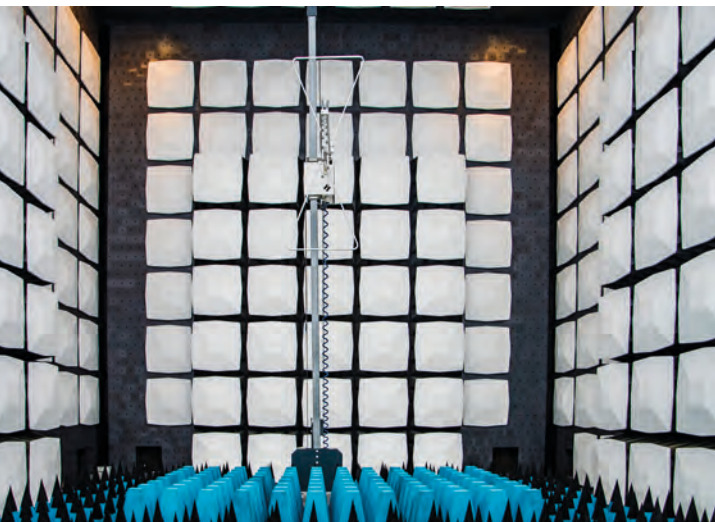
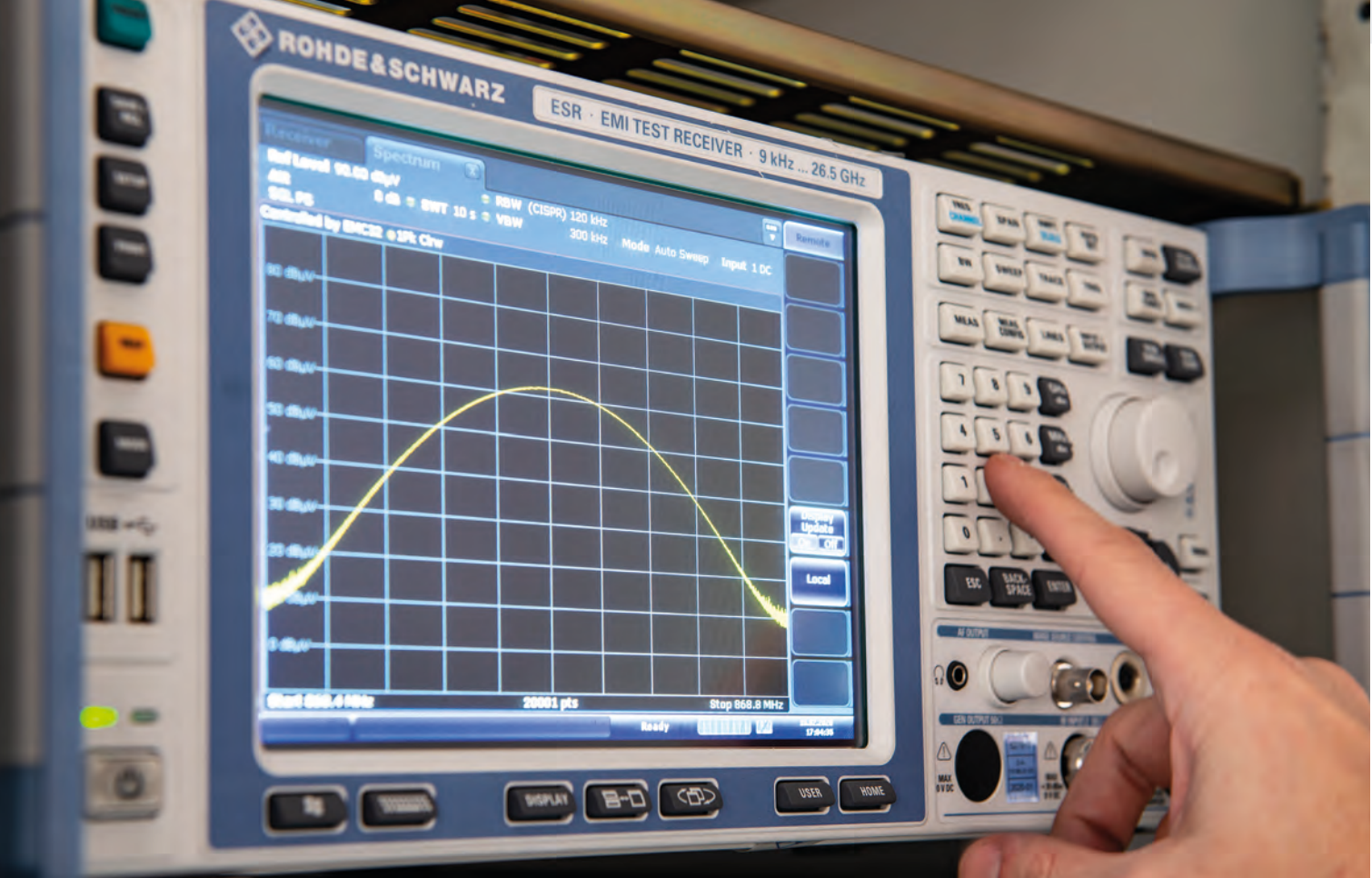


ELECTROMAGNETICAL COMPATIBILITY (EMC)

Basic standard	Measure
EN/IEC 61000-3-3 EN/IEC 61000-3-11	Flicker, until 15kW tree-phase
EN/IEC 61000-3-2 EN/IEC 61000-3-12	Harmonics, until 15kW tree-phase
EN/IEC 61000-4-2	Electrostatic discharge, until 30kV
EN/IEC 61000-4-3	Radiated fields
EN/IEC 61000-4-4	Burst, Fast transient
EN/IEC 61000-4-5	Surge, high energy impulse
EN/IEC 61000-4-6	RF fields induced
EN/IEC 61000-4-8	Magnetic field
EN/IEC 61000-4-11 EN/IEC 61000-4-29	Interruption, ac/dc voltage variation
EN 55016-1-2 EN IEC 55016-1-1	Conducted and radiated emission

Product standard	Field
EN/IEC 61326-1	Measurement, control and laboratory
EN/IEC 60601-1-2	Medical devices
EN 55032 EN 55035	Information technology
EN/IEC 55015 EN/IEC 61547	Illumination
EN/IEC 55011	Industrial
EN/IEC 61000-6-1 EN/IEC 61000-6-3	Generic for residential areas
EN/IEC 61000-6-2 EN/IEC 61000-6-4	Generic for industrial areas
EN/IEC 55014-1 EN/IEC 55014-2	Domestic appliances
EN 50121-3-2 EN 50121-4 EN 50155 - EN 50121-5	Railway sector
EN 50130-4	Alarm systems
EN/IEC 60974-10	Welding equipment







DELTA TYPE TEST FOR RADIO EQUIPMENTS

Standard	Technology	Example
ETSI EN 300 328	Wideband transmission systems	Bluetooth, Zigbee, Wi-Fi
ETSI EN 300 330	Short Range Devices (SRD): 9 kHz to 25 MHz	RFID
ETSI EN 300 220-1 /-2	Short Range Devices (SRD): 25 MHz to 1000 MHz	868MHz radio modules





SAFETY TEST

Test	Characteristics
Absorption measure	0÷600 Vac 0÷100 A 10Hz ÷ 100kHz
Accessibility test	Different Test gauges and probes
Residual voltage measure	Oscilloscope and voltage probe
Temperatures measure in normal / fault condition	Thermocouple or thermo camera
Leakage currents measure	0÷300V 20A 0,04÷50mA
Ground resistance measure	3÷40A ac 1÷650mΩ
Insulation resistance measure	500/1000 Vdc 1÷2000MΩ
Dielectric strength test	0÷5k Vac and 0÷6k Vdc
Insulation distances measure	With hundredth gauge and CAD system
Generic test	With 20N sphere, 500g sphere, Dynamometer, dynamometric screwdrivers

Used standards

EN 61010-1, EN 60335-1, EN 60730-1, EN 62368-1
EN 60601-1, EN 60204-1, EN 61131-2

EMF TEST

Human exposure to electromagnetic Fields

Reference standard	Test
EN 62479	Low Power Electronic and Electrical Appliances
EN 62311	Electronic and Electrical Appliances
EN 62233	Household appliances
EN 62493	Lighting equipments

TS

TESI ACCORDIA
CERT. 8402_2016_ACR_EXT
MODEL: 1-40-100
S/N: 257402 (1575280)
I.M.: 257402-00
S.M.: 257402-00

CLI100

ELITE

CLIMA TEMPERATUR SYSTEME

C-40600
Modo manuale

Temperatura
Nom.: 5.00 °C
Reale: 25.59 °C

Umidità
Nom.: 20.0 %UR
Reale: 45.7 %UR

Riserva d'acqua
Nom.: 15.0 l
Reale: 8.0 l

TemnAriaAliment

PAUSE MANUAL PROG ALARM

START/STOP

WAV 3D 3D 4D XSTIC CoTI RULES WPAV QMI

ARCHIVE REVIEW PHYSIO PLEX VTR

EXAM REVIEW BIOPSY GAIN ADJUST CLEAR ALL

ADM S-REF HPRF

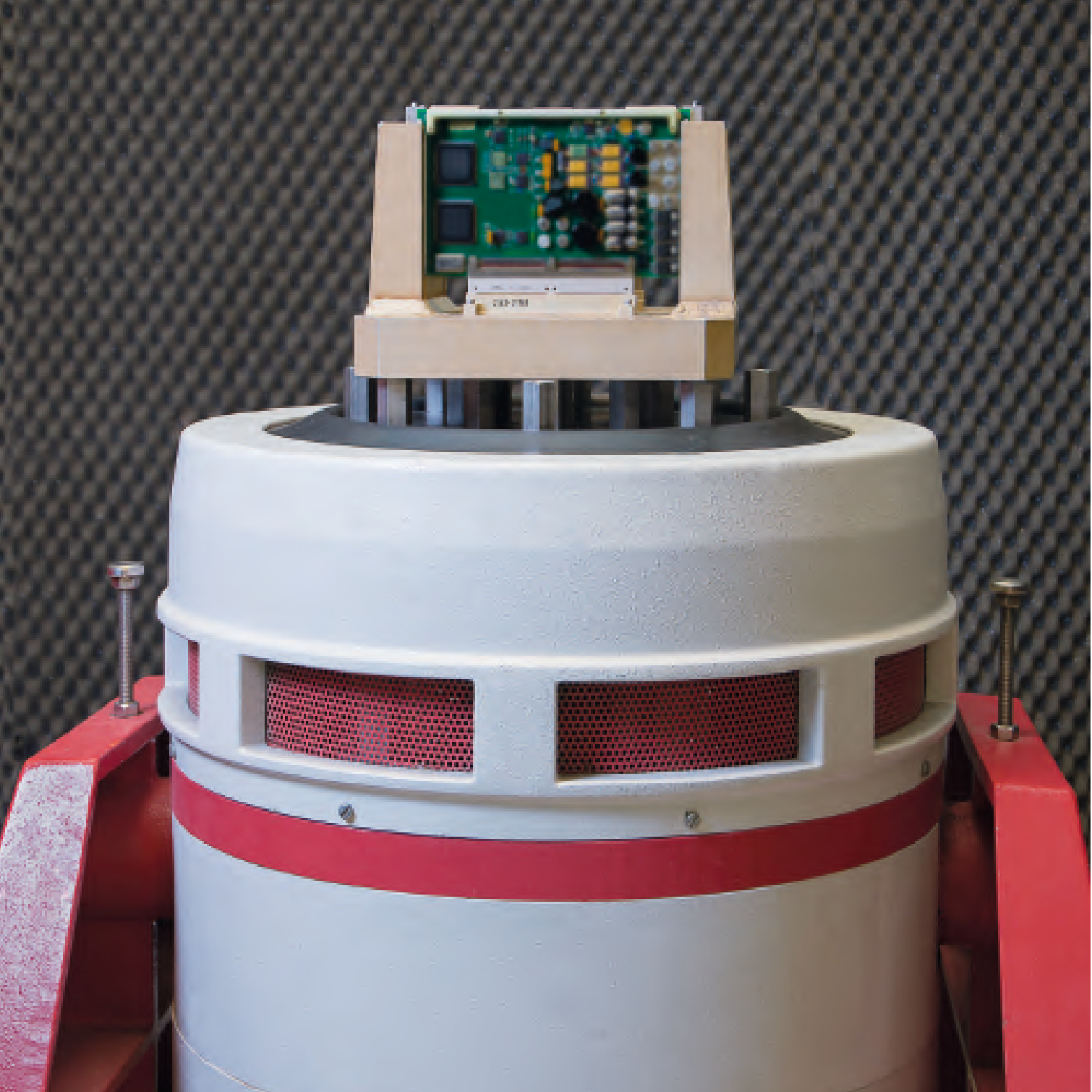
ADM SETUP FILTER 65 Hz SV SIZE 3.0 mm ANGLE 0° AUDIO 7



ENVIRONMENT AND RELIABILITY TEST

Reference standard	Test
EN 60068-2-1	A test: cold
EN 60068-2-2	B test: dry hot
EN 60068-2-14	N test: Temperature change
EN 60068-2-30	Db test: Damp heat cyclic
EN 60068-2-38	Z/AD test: combined temperature/humidity cyclic test
EN 60068-2-78	Cab test: damp heat steady state

Temperature range:	-70 ÷ +180°C
Humidity range:	10÷98%
Max temperature gradient:	10°C/min
Maximum humidity gradient:	3%/min
Maximum burn-in test room:	3x3x h 2 m





MECHANICAL TEST

Reference standard	Test	
EN 60068-2-6	Fc Test: Vibration	Sinusoidal vibration
EN 60068-2-27	Ea Test: Shock	Half-sinusoidal, trapezoidal, triangular, saw-tooth
EN 60068-2-64	Fh Test: Vibration	Random broadband (numeric control)
EN 61373	Mechanical test	Railway field

Max dimensions in EUT: 60x60x60 cm

Max weight in EUT: 130 kg

	Vibration test	Shock test
Max force:	8896 N	8896 N
Frequency range:	2 ÷ 3000Hz	/
Shock time	/	0,5-1-6-11-18-25 msec
Max peak acceleration (sinusoidal)	75 g peak	45 g peak
Max peak acceleration (Random)	60 g rms	/
Max displacement	± 25,4 mm	± 25,4 mm





THERMOGRAPHY

Thermography is a technical system that allows the detection of thermal energy released by a body using a colour map.

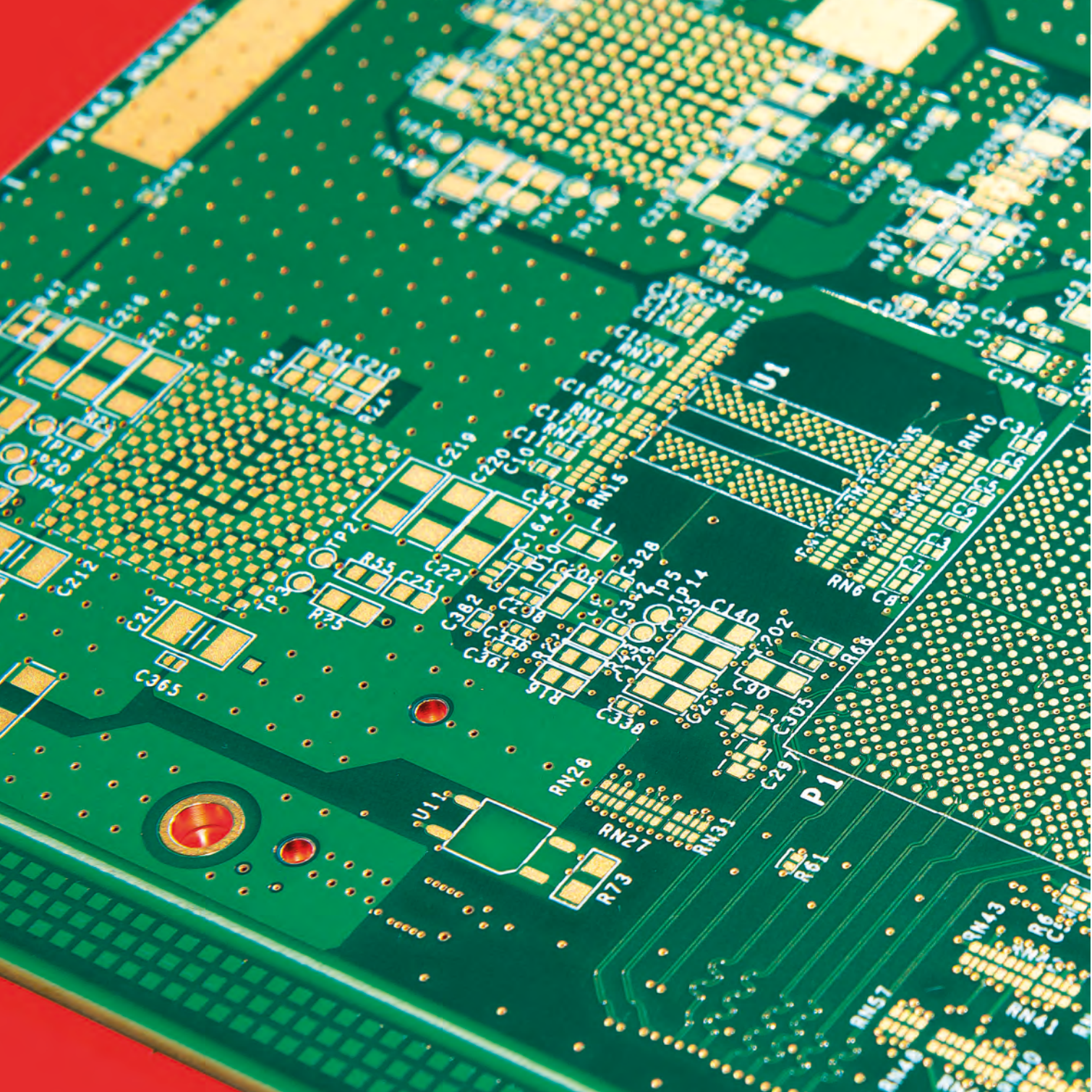
Thanks to a digital camera (thermo-camera) with a particular sensor, the thermal energy can be recognized by the infrared field emitted by the surfaces, reducing testing time and minimising the risk of damage to the components.

- Heat distribution measure
- Non-destructive test
- Thermodynamic machines and equipment
- Fault finding on Printed Circuits
- Fault finding
- Thermal monitoring during mechanical fatigue test
- Thermal monitoring during electric test
- Thermal monitoring during tests and safety / failure test
- Predictive maintenance

X-RAY INSPECTION



Equipment available and IP trained inspectors to perform production monitoring and detailed analysis vs. IPC and/or Customer requirements.



ANALYSIS OF PCBs

Elmaster can provide further services, dedicated to the **analysis of PCBs**, through its own laboratory located in **Eleprint**, the company of the group whose core business is the Printed Circuit Boards production.

Having a test lab within a PCB manufacturer is crucial to guarantee the highest level of quality to all our Customers, performing several kinds of tests on your products:

Chemical tests

To check your circuits, we can perform:

- Qualitative data analysis of organic substance concentration by water spectrophotometric test.
- Analysis for the control and management of production lines.
- Analysis of organic substances in electrolytic line by CVS.

Thermo-Mechanical PCB Analysis (TMA)

To offer you the best choice among different options, setting the ideal material which you will need to reach the exact performance that you want, and to check PCB construction and reliability, by TMA we can define:

- TG
- Delta TG
- TTD

Electric and electronic PCB analysis

To keep high frequency signal integrity, we can perform:

- Electric / Electronic PCB Analysis
- PCB Impedance Control by CITS Polar Instrument

Non-destructive tests for surface coating measure and hole copper thickness

To ensure the best level of quality on your products, we can do:

- Non-destructive thickness measure on finishing coating chemical nickel-gold, tin-HAL, by Fischerscope X-Ray
- Non-destructive measure of copper thickness in the holes (by CMI, Eddy current instrument)
- Quality acceptance evaluation provided by Certified IPC Specialists – IPC-A-600.

All tests are performed by Certified IPC Specialists (CIS), who are able to define the suitability of all samples according to the IPC-A-600 standards, class II or class III. Our internal IPC trainer CIT ensures us a high standard for all the inspections performed by operators.



The brochure was updated in March 2026
to view the complete list of laboratory tests please visit www.elemaster.com





Contacts

ELETECH Srl

Innovation in Electronics

Via Stoppani, 13
23875 Osnago (LC) - Italy
Phone: +39 039 993 4000
elemaster.com

ELEPRINT Srl

Via degli Artigiani, 29
23874 Montevicchia (LC) - Italy
Phone: +39 039 999 141
eleprint.it

