



ABOUT US

Standart Kontrol ve Test Hizmetleri (Standard Control and Test Services) has been founded in 2017 at Ankara Malıköy Anadolu Organised Industrial Zone so as to perform Turkey's fully independent, objective test activities that the sector needs, especially Military and Civil Tests. STEST test centre which has Turkey's greatest test infrastructure with private capital in terms of volume and capacity, has taken its place amongst the leading companies of the sector in a short time and has been providing test services for several local and foreign companies.

It has become one of the greatest test infrastructures in Turkey which is an expert in its field and located on 4000 m2 area, with "TS EN ISO/IEC 17025 General Requirements for The Competence of Testing and Calibration Laboratories" TÜRKAK audit performed in 2021. Besides, it has also accomplished TS EN 10263 standards audit in 2021 and has become a TSI certified test laboratory. It has incorporated MIL-STD 461-464-1275, MIL STD 810 and DO-160 standards by spreading its service network with the audits performed each year and today, it provides solution partnership for several local and foreign institutions for type-tests, R&D services, acceptance tests and for tests on platform and equipment basis with more than 100 national / international standards within its scope.

Test Standards Within Our Capability:

- * MIL-STD-461
- * MIL-STD-464
- * MIL-STD-202
- * MIL-STD-462
- * MIL-STD-167
- * MIL-STD-810
- * MIL-STD-704
- * MIL-STD-1275
- * MIL-STD-28800
- * RTCA/DO-160
- * TS EN 60945
- * TS ISO 10263
- * TS EN 60068
- * TS EN 1789
- * IEC 60601

TEST CENTERS



**Environmental
Tests**



**EMI/EMC Test
Center**



**ATP Test
Center**

ENVIRONMENTAL TEST CENTER CAPABILITIES

	TESTS	STANDARD	PROCEDURES	PAGE NUMBER
CIVIL TESTS	Experiments of Resistance to Environmental Conditions	TS EN 60068-2-2 /2-30/2-52	Dry Heat, Damp Heat, Salt Fog	5
MILITARY TESTS	Low Pressure (Altitude)	MIL STD 810 F/G/H	500.4/500.5/500.6	5
	High Temperature		501.4/501.5/501.7	
	Low Temperature		502.4/502.5/502.7	
	Thermal Shock		503.4/503.5/503.7	6
	Solar Radiation (Sunlight)		505.4/505.5/505.7	
	Rain		506.4/506.5/506.6	
	Humidity		507.4/507.5/507.6	7
	Mushroom		508.5/508.6/508.8	
	Salt Fog		509.4/509.5/509.6	
	Dust and Sand		510.4/510.5/510.7	8
	Immersion		512.4/512.5/510.6	
	Vibration		514.5/514.6/514.8	
	Acoustic Noise		515.5/515.6/515.8	9
	Shock		516.5/516.6/516.8	
	Temperature, Humidity, Vibration and Pressure		520.2/520.3/520.5	
	Icing and Freezing Rain		521.2/521.3/521.4	10
Freezing and Thawing	524/524.1			
AVIATION TESTS	Temperature and Pressure	RTCA DO 160E/F/G	Section 4.0	10
	Temperature Change		Section 5.0	
	Humidity		Section 6.0	
	Vibration		Section 8.0	
	Resistance to Water		Section 10.0	
	Dust and Sand		Section 12.0	
	Salt Fog		Section 14.0	
	Icing		Section 24.0	
Electrostatic Discharge	Section 25.0			
MEDICAL EQUIPMENT	Medical Electrical Equipment Tests	TS EN 60601-1-12	Storage Test, Continuous Operation Test , Intermit-tent Operation	10
CONSTRUCTION MACHINES	Air-conditioning, heating and/or climatization of operator enclosure experiment method	TS ISO 10263	Section 4	11
	Windscreen de-icer system experiment method		Section 5	
ON-ROAD VEHICLES	Environmental conditions and tests for electrical and electronical equipment	ISO 16750 1/2/3/4/5	General, Electric Charges , Air-Conditioner Loads , Chemical Loads	11
ROAD AMBULANCES	Medical Vehicles and Equipment	TS EN 1789	Heating, Cooling Tests	11

ATP TEST CAPABILITIES

	TESTS	STANDARD	PROCEDURES	PAGE NUMBER
TRANSPORTATION OF FROZEN FOOD	Insulated Equipment Tests	ATP Handbook 2020		16-17
	Cooling Equipment Device Type Test			

EMI/EMC TEST CAPABILITIES

	TESTS	STANDARD	PAGE NUMBER	PAGE NUMBER
MILITARY TESTS	CE101 – Diffusion by Conductivity Power Lines Tests (30 Hz - 10 kHz)		MIL-STD 461 E/F/G	17-18
	CE102 - Diffusion by Conductivity Power Lines Tests (10 kHz - 10 MHz)			
	CS101 – Susceptibility by Conductivity Power Lines Tests (30 Hz - 150 kHz)			
	RS101 - Susceptibility by Radiation Magnetic Field Tests (30 Hz - 100 kHz)			
	RE101 - Diffusion by Radiation Magnetic Field Tests (30 Hz - 100 kHz)			
	RE102 - Diffusion by Radiation Electric Field Tests (10 kHz - 40 GHz)			
	RS101 - Susceptibility by Radiation Magnetic Field Tests (30 Hz - 100 kHz)			
	RS103 - Susceptibility by Radiation Electric Field Tests (10 kHz - 40 GHz)			
	CS114 - Susceptibility by Conductivity Cable Injection Tests (10 kHz - 200 MHz)			
	CS115 - Susceptibility by Conductivity Cable Injection Impact Tests			
	CS116 - Susceptibility by Conductivity Repressed Sinusoid Passages, Cables ve Power Lines Tests (10 kHz - 100 MHz)			
	CS118 / ESD - Electrostatic Discharge Due to Personnel			
	HERO – Ammunition Threat of Electromagnetic Radiation Test			
	HERP Dangerous Electromagnetic Radiation Measurement for Personnel			
	HERF – Test of Electromagnetic Radiation for Fuel			
	EMRADHAZ - Electromagnetic Radiation Protection Test			
	Emitted Voltage Spikes		MIL- STD 1275 D/E	19
	Emitted Voltage Surges			
	Injected Voltage Spikes			
	Injected Voltage Surges			
	Operational Voltage Range			
	Reverse Polarity			
	Starting Operation			
	Voltage Ripple			
	SECTION 25 / ESD		RTCA/DO-160 E/F/G	
	LDC 101 Load Measurements		MIL-STD 704 A/B/C/D/E/F 28 VDC	20
	LDC102 Voltage Steady State Limits			
	LDC 103 Voltage Distortion Spectrum			
	LDC104 Total Ripple			
	LDC 105 Normal Voltage Transitions			
	LDC201 Power Failure			
	LDC301 Voltage Steady State Limits			
	LDC302 Abnormal Voltage Transitions			
LDC401 Voltage Steady State Limits				
LDC501 Initial Voltage Transitions				
LDC601 Power Down				
LDC602 Reverse Polarity				
VEHICLE TESTS	Automotive EMC Tests		ECE R10	20
	Agricultural and Forestry Machinery Tests		EN ISO 14982	
	Excavation and Building Construction Equipment Tests		TS EN ISO 13766-1/2	
CIVIL TESTS	TSE/IEC/EN 55014-1/CISPR 14-1	TSE/IEC/EN 60601-1-2	TSE/IEC/EN 50470-1/3	20
	TSE/IEC/EN 55014-2/CISPR 14-2	TSE/IEC/EN 61000-6-1/2	TSE/IEC/EN 60945	
	TSE/IEC/EN 55011/CISPR 11	TSE/IEC/EN 61000-6-3/4	TSE/IEC/EN 60533	
	TSE/IEC/EN 55024/CISPR 24	TSE/IEC/EN 62052-11	TSE/IEC/EN 61547	

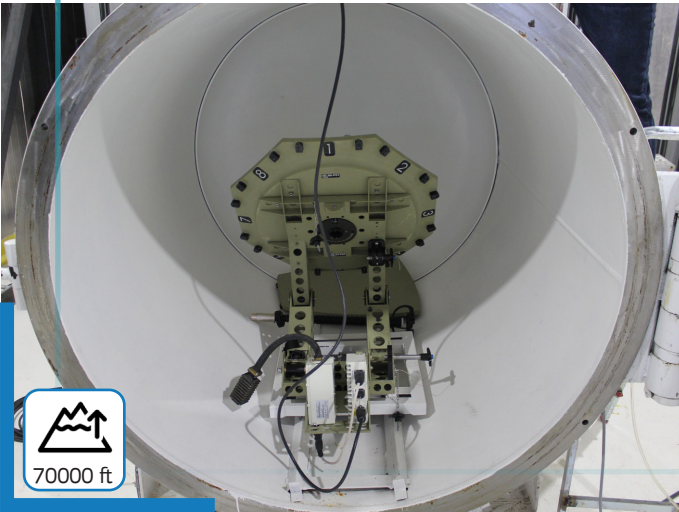
ENVIRONMENTAL TESTS



- Low Pressure (Altitude) Test
- High Temperature Test
- Low Temperature Test
- Thermal Shock Test
- Solar Radiation Test
- Rain Test
- Humidity Test
- Salt Fog Test
- Dust-Sand Test

- Mushroom Test
- Immersion Test
- Vibration Test
- Acoustic Noise Test
- Shock Test
- Temperature, Humidity, Vibration and
- Altitude Test
- Icing and Freezing Rain Test
- Do 160 Test

Low Pressure (Altitude) Test



Low Pressure (Altitude) Test is made to determine whether the tested sample will resist to low pressure (altitude) conditions or rapid pressure change. For this test leakproof and heat insulated special rooms or cabinets containing auxiliary equipment which will provide and monitor required low pressure and temperature conditions. The performance of the sample is monitored during or at the end of the test, the errors emerging are recorded if there are any.

Low pressure (altitude) tests are applied in order to test material durability for the environments where material is subject to low pressure conditions or rapid pressure changes.

High Temperature Test



It is made to determine the resistance of the tested sample against high temperature from natural environmental conditions. The sample placed in the test cabinet, is waited for a convenient time at convenient high temperature conditions that would be exposed under real usage and/or storage conditions. The performance of the sample is monitored during or at the end of the test, the errors emerging are recorded if there are any.

Tests can be performed in accordance with any military and civil standards which are compatible with the technical specifications of climatization cabinets. Tests can be performed in accordance with MIL STD 810, RTCA DO 160 G which are especially within the operation area.

Low Temperature Test



It is made to determine the resistance of the tested sample against low temperature from natural environmental conditions. The sample placed in the test cabinet, is waited for a convenient time at convenient low temperature conditions that would be exposed under real usage and/or storage conditions. The performance of the sample is monitored during or at the end of the test, the errors emerging are recorded if there are any.

Tests can be performed in accordance with any military and civil standards which are compatible with the technical specifications of climatization cabinets. Tests can be performed in accordance with MIL STD 810, RTCA DO 160 G which are especially within the operation area.

Thermal Shock Test



It is made to observe the resistance of the tested sample against rapid temperature changes. The performance of the sample is monitored during or at the end of the test, the errors emerging are recorded if there are any. Tests can be performed in accordance with any military and civil standards which are compatible with the technical specifications of climatization cabinets.

Temperature shock test is used to determine whether the material will resist to rapid temperature changes in the atmosphere temperature of the environment without any physical damage or performance decrease. Rapid changes are described as temperature changes higher than 10 ° C in a minute. It is evaluated how the material react against temperature changes and rapid increases in a period of one minute.

Solar Radiation Test

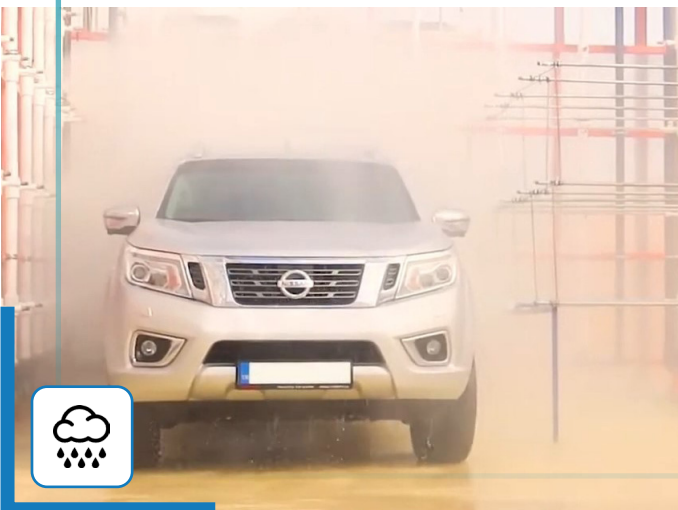


Solar radiation test is made to determine the thermal effects or photochemical deterioration effects created on the tested material by direct exposure to solar radiation. For this test special rooms or cabinets containing solar lamp groups where temperature, airflow and radiation are kept under control. This method has two aims;

1. To measure the effect of temperature and solar radiation on the material.
2. To define solar radiation effects.

Solar radiation tests are performed in accordance with MIL STD 810 standards.

Rain Test



The sample to be tested is exposed to rain effect under normal conditions. The performance of the sample is monitored during or at the end of the test, the errors emerging are recorded if there are any. Tests can be performed in accordance with any military and civil standards which are compatible with the technical specifications of climatization cabinets.

Tests can be performed in accordance with MIL STD 810, RTCA DO 160 G which are especially within the operation area. Any kind of sample with suitable physical specifications (dimensions/weight) could be tested. Different types of test cabinets with different dimensions are used to perform the test.

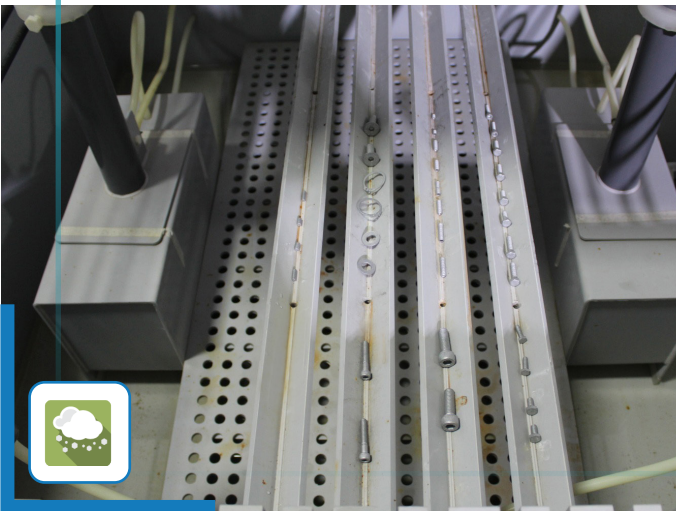
Humidity Test



This test is made to determine the resistance of the tested sample against humidity from natural environmental conditions. The sample placed in the test cabinet, is waited for a convenient time at convenient humidity conditions that would be exposed under real usage and/or storage conditions. The performance of the sample is monitored during or at the end of the test, the errors emerging are recorded if there are any.

Humidity tests are performed in accordance with MIL STD 810 and RTCA DO 160 G standards.

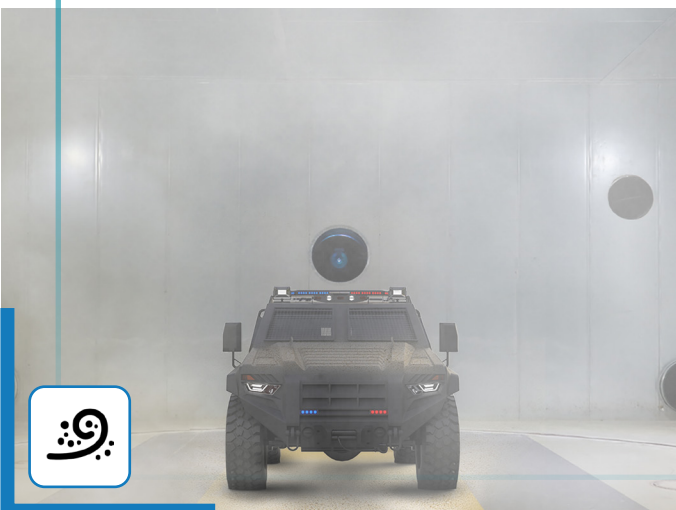
Salt Fog Test



This test is made to determine the resistance of the protective coating and surfaces on the sample to be tested against salt fog effect. The sample placed into the test cabinet is exposed to salt fog environment. At the end of the test physical, electrical controls and corrosion investigation of the sample is made, the errors emerging are recorded if there are any.

Salt fog (corrosion) tests are performed in accordance with MIL STD 810, RTCA DO 160 and ISO standards.

Dust-Sand Test



Dust test is made to test resistance of test sample against the effects of dust such as closing gaps, filling into cracks, penetrating into insert bearings, rollers and junctures, plugging filters for particle dimensions of $< 150 \mu\text{m}$. Sand test is made to test resistance of test sample against the conditions such as corrosion, surface breakdown which are possible to be faced in conditions of storage or operation at sandy windy areas, for particle dimensions between $150 \mu\text{m}$ and $850 \mu\text{m}$.

Dust-sand tests are performed in accordance with MIL STD 810 and RTCA DO 160 standards.

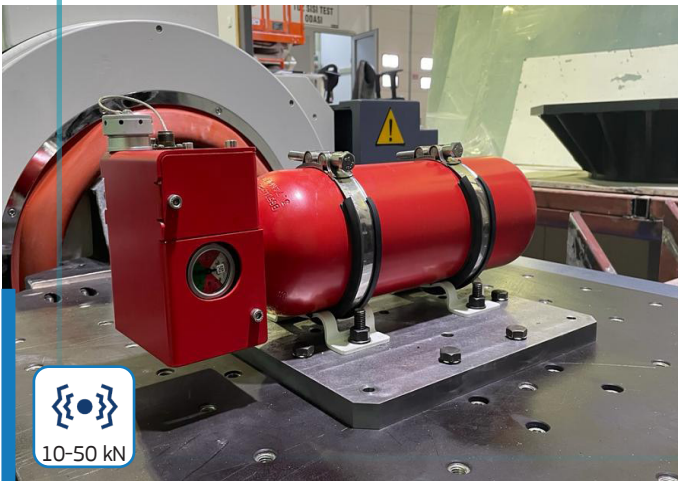
Immersion Test



It is made to determine the resistance of the tested sample against partial or full immersion. Tests can be performed in accordance with any military and civil standards which are compatible with the technical specifications of climatization cabinets.

There is a pool at our test centre for immersion tests which has the suitable depth and dimension for full immersion of the sample. In order to provide that there is a controlled heating system in the pool. Furthermore, the material or equipment to be tested should have the specifications that can be exposed to partial or full immersion. By this way, the damage or defects that could emerge in case the material or equipment partially or fully submerged could be observed during the test.

Vibration Test

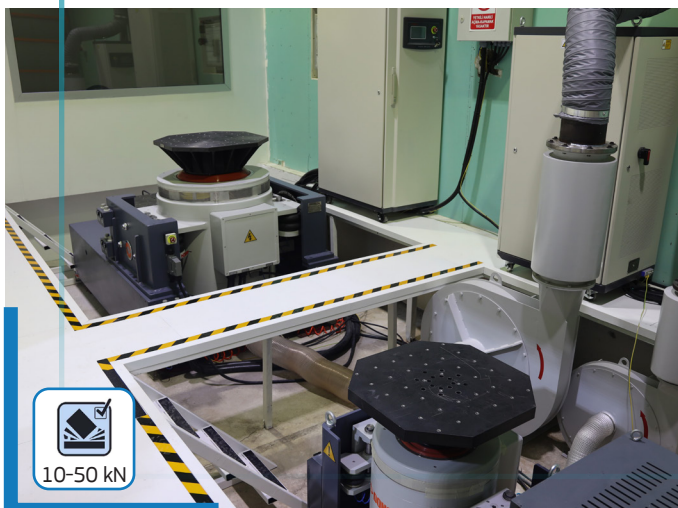


10-50 kN

Vibration tests ensure that the vibrations that the products are exposed to during transportation are applied in a controlled manner in the laboratory environment. Vibrations during transportation can cause excessive wear on products, loosening of product connections and fasteners, and damage to product components. For any equipment to be functional it must withstand some level of vibration. Equipment designed for rugged or harsh environments must withstand vibration without failing or prematurely wearing out. The only way to know if a product will withstand the intended application or challenge is to test the product against this challenge.

It can also be performed in MIL STD 167-1/A and AECTP 400 standards.

Shock Test



10-50 kN

Shock tests are the energy transfer applied to test the durability of a product when it is subjected to a drop, impact, explosion or any temporary source of vibration. Shock pulses can range in time from a few milliseconds to a minute.

It can also be carried out in the AECTP 400 standard.

Device-1

Only vertical (z) testing can be performed.

Max. Power: 10kN

Max. Carrying Capacity: 300KG

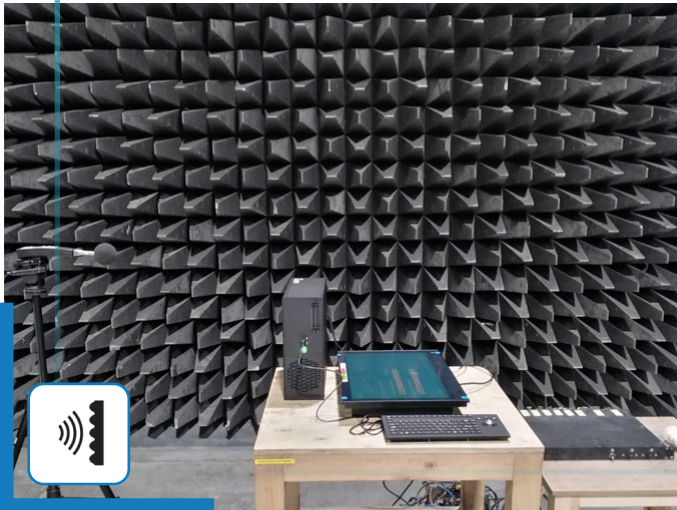
Device-2

Tests can be performed in 3 directions (x, y, z)

Max. Power: 50kN

Max. Carrying Capacity: 800KG

Acoustic Noise Test



Acoustic noise test is made to determine the resistance capability of the material against the specified acoustic environment without any unacceptable defect on its operational performance and/or structural integrity.

Temperature, Humidity, Altitude and Vibration Test



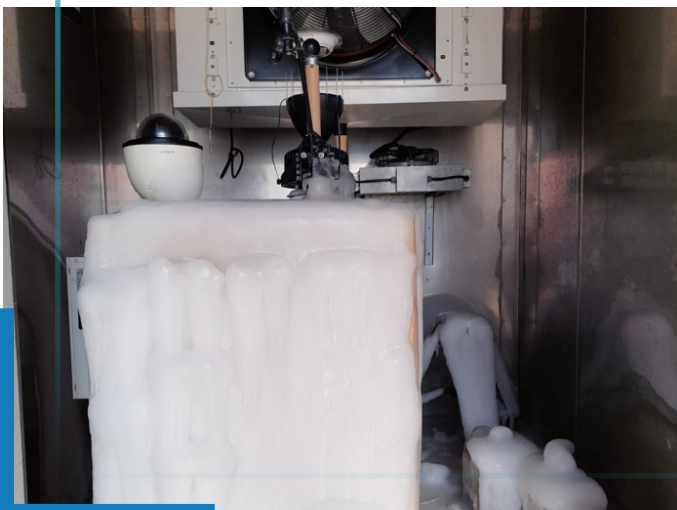
Temperature, Humidity, Vibration and Altitude Test(MIL-STD-810G Method 520)

It is a combination of;

- * High Temperature (Method 501)
- * Low Temperature (Method 502)
- * Humidity (Method 502)
- * Altitude (Method 500)
- * Vibration (Method 514) Tests.

The samples resistance against the harsh conditions that the sample could face during its life cycle by simultaneous application of all these tests to the relevant sample.

Icing and Freezing Rain Test



Icing and Freezing Rain Test is made to determine the functional performance of the test sample regarding icing. The sample placed into the test cabinet is exposed to icing conditions that can be faced under real usage circumstances. During or at the end of the test, physical investigation and functional control of the sample is made, the errors emerging are recorded if there are any. Tests can be performed in accordance with any military and civil standards which are compatible with the technical specifications of icing/freezing cabinet.

Freeze and Thaw Test



The purpose of this test is to determine the resistance capability of the material against the effects of humidity phase forming inside or on the material, between liquid and solid state while getting to freezing point from ambient temperature or the effects of humidity resulting from getting hot from cold or getting cold from hot.

Medical Electronical Equipment Tests



These are the test procedures applied to determine the performance, resistance, integrity and reliability of medical electronic product under the conditions of operation at high temperature, intermittent operation, storage and operation at low temperature, intermittent operation, storage. It is observed whether there is any problem during operation of medical electronic samples at specific climatization circumstances.

DO 160 E/F/G Tests



DO-160 Compatibility Test describes standard environmental test conditions and applicable electromagnetic compatibility (EMC) test procedures for the equipment on air. It provides the means to present the performance specifications of air crafts at environmental and electrical circumstances that can be faced during operation of equipment on air crafts for a standard manufacturer and test laboratory.

DO-160 test is revised to approach the test technologies that emerged and improved as a result of the better understanding of the equipment operation under actual environmental conditions. Test standard can be grouped as directional, electromagnetic and mechanical.

Ambulances and Emergency Health Vehicles and Ambulance Services Compatibility Tests



It is used to test the compatibility to rules and procedures regarding ambulance services and establishment, functioning and auditing ambulance services, and compatibility to vehicle climatization for the ambulances, emergency health vehicles and ambulifts.

Heating performance of the air-conditioner is observed when ambient temperature is low or cooling performance of air-conditioner is observed when ambient temperature is high.

Inside the Operator Section Environmental Tests



It aims to observe and report the effects of air-conditioning, climatization and heating within the operator enclosure at specific ambient conditions. It defines the test method used to measure the contribution of heating, air-conditioning and climatization system operating in a specific environment to the ambient temperature within the operator enclosure. The climatic environment within the operator enclosure may not clearly correspond to this method. For heating, air-conditioning and climatization systems of operator enclosure of the machine, the minimum performance levels are determined and operator enclosure is put to these tests.

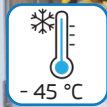
Construction and Excavation Machinery Environmental Test



Performance of windscreen de-icer systems, de-icing at operator enclosure and windscreen by a device are aimed. It is performed by test equipment required for laboratory facilities. It contains the procedures about the necessity of de-icing for the ice formed at ambient conditions on windscreen of the tested products/test vehicles.

ENVIRONMENTAL TEST CHAMBERS

21500 mm ENVIRONMENTAL TEST CHAMBERS



Drive-In 1

6000x4900x4000 mm

(Konf-1)

Drive-In 2

6000x4900x4000 mm

(Konf-2)

Drive-In 3

9500x4900x4000 mm

(Konf-3)

12000x4900x4000 mm

(Konf-4)

15500x4900x4000 mm

(Konf-5)

21500x4900x4000 mm

(Konf-6)

GENERAL SPECIFICATIONS

Temperature Change Range: %20 RH and %99 RH
Humidity Change Range: 3°C/minutes (max)

TESTS PERFORMED

- High Temperature Test
- Low Temperature Test
- Thermal Shock Test
- Solar Radiation Test
- Humidity Test
- Icing and Freezing Rain

TEST STANDARDS

- MIL STD 810 E/F/G
- RTCA DO 160 G

-70 °C / +150 °C CLIMATISATION TEST CABINET



GENERAL SPECIFICATIONS

Dimensions : (1000x1000x1000 mm)
Temperature Change Range: -70°C and +150°C
Humidity Change Range: %20 RH and %99 RH
Temperature Change Speed: 3°C/minutes (max)

TESTS PERFORMED

- High Temperature Test
- Low Temperature Test
- Thermal Shock Test
- Humidity Test
- Icing and Freezing Rain

TEST STANDARDS

- MIL STD 810 E/F/G
- RTCA DO 160 G

-65 °C / +80 °C CLIMATISATION TEST CABINET



GENERAL SPECIFICATIONS

Dimensions : (2600x2600x2000 mm)
Temperature Change Range: -65°C and +80°C
Humidity Change Range: %20 RH and %99 RH
Temperature Change Speed: 3°C/minutes
Temperature Adjustment Sensitivity: ±2°C

TESTS PERFORMED

- High Temperature Test
- Low Temperature Test
- Thermal Shock Test
- Solar Radiation Test
- Humidity Test
- Icing and Freezing Rain

TEST STANDARDS

- MIL STD 810 E/F/G
- RTCA DO 160 G

13000 mm RAIN TEST CABINET



GENERAL SPECIFICATIONS

Dimensions cabinet 1: (13000x5250x5000 mm)
Dimensions cabinet 1: (2000x2000x2000 mm) Pegasus
Water Pressure Change Range: 0 bar and 10 bar
Wind Speed Change Range: 0 m/s and 20 m/s
Water Flow Velocity Change Range: 40 Liter/minute

TESTS PERFORMED

- Rain Test
- IP 6X Tests

TEST STANDARDS

- MIL STD 810 E/F/G
- RTCA DO 160 G

70000 ft (ALTITUDE) TEST CABINET



GENERAL SPECIFICATIONS

Cabinet length: 2000 mm
Cabinet diameter: Ø 1400 mm
Minimum Test Temperature: -54 °C
Maksimum Test Temperature +80 °C
Height: 0-70000 ft

TESTS PERFORMED

- Low pressure altitude test

TEST STANDARDS

- MIL STD 810 E/F/G
- RTCA DO 160 G

SALT FOG TEST CABINET



GENERAL SPECIFICATIONS

Dimensions : (1200x1200x600 mm)
Temperature Change Range: 35°C and 55°C
Humidity Change Range: %20 RH and %99 RH

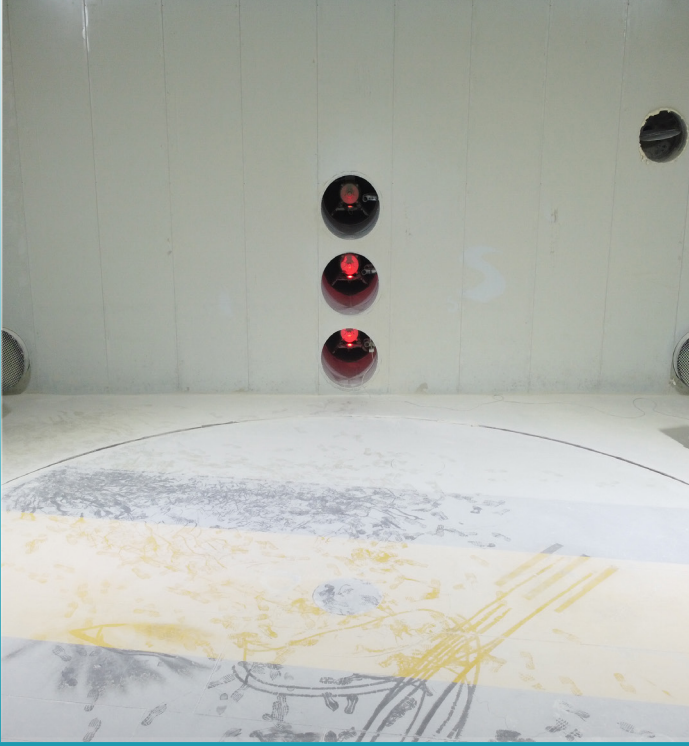
TESTS PERFORMED

- Salt Fog Test

TEST STANDARDS

- MIL STD 810 E/F/G
- RTCA DO 160 G
- ATSM
- TS EN ISO

12000 mm DUST and SAND CABINET



GENERAL SPECIFICATIONS

Dimensions : (12000x12000x6000 mm)
Temperature Change Range: +5°C and +71°C
Humidity Change Range: %20 RH and %50 RH
Temperature Change Speed: 3°C/minute (max)
Wind Speed: 0-32 m/s
Dust Density: 10,6 gr/m³
Sand Density: 2,2 gr/m³
Rotating Table Diameter: 10 Meters
Rotating Table Load Bearing Capacity: 70 Tons
Exhaust Extraction System

TESTS PERFORMED

- Dust and Sand Test

TEST STANDARDS

- MIL STD 810 E/F/G
- RTCA DO 160 G

2000 mm DUST SAND TEST CABINET



GENERAL SPECIFICATIONS

Dimensions : (2000x2000x2000 mm)
Temperature Change Range: +5°C and +71°C
Humidity Change Range: %20 RH and %50 RH
Temperature Change Speed: 3°C/dakika
Wind Speed: 20 m/s
Dust Sensity: 10,6 gr/m³
Sand Sensity: 2,2 gr/m³

TESTS PERFORMED

- Dust and Sand Test

TEST STANDARDS

- MIL STD 810 E/F/G
- RTCA DO 160 G

ATP TYPE TESTS

INSULATED EQUIPMENT TEST

One of the type testing processes within the scope of the ATP agreement is insulated equipment type tests. ATP insulated equipment type tests are carried out on special transport equipment used in the transport of perishable foodstuffs specified in the contract.



**Heat Transfer
Coefficient**
 $K = W / S \times \Delta t$

INSULATED ROOMS

Insulated Room 1 Dimensions: 6000x 4900 x 4900 mm
Insulated Room 2 Dimensions: 9500x 4900 x 4900 mm
Insulated Room 3 Dimensions: 12000x 4900 x 4900 mm
Insulated Room 4 Dimensions: 15500x 4900 x 4900 mm
Insulated Room 5 Dimensions: 21500x 4900 x 4900 mm

GENERAL SPECIFICATIONS

Insulated Case Outdoor Temperature Rating: 7,5 °C
Device Type Test Temperature Range: 32,5 °C
Maximum Test Temperature: 55°C
Maximum Humidity Rate: 50 RH

TESTS PERFORMED

ATP Insulated Test

TEST STANDARDS

ATP Handbook 2020



COOLING EQUIPMENT DEVICE TYPE TEST

It is applied to mechanical cooling devices with forced air circulation evaporator with or without heating device. Mechanical cooling devices are intended for use with insulated transport equipment. Equipment for the international transport of perishable foodstuffs shall not be defined as 'insulated', 'refrigerated', 'mechanically refrigerated', 'heated' or 'mechanically cooled and heated' equipment unless it complies with the specified definitions and standards. These are the test steps applied in calculating the cooling capacity of the cooling units in the vehicle cabins at the specified temperature within the scope of ATP type tests.

In line with the customer's request, the cooling units in the vehicle cabins are tested within the scope of ATP HANDBOOK 2020 so that the food can be shipped safely.



**Power
Capacity**
 $W = K \times S \times \Delta t$

CALORIE BOXES

Calorie Box 1 Dimensions: 1900x 2900 x 1800 mm

Calorie Box 2 Dimensions: 1800x 1900 x 1800 mm

Calorie Box 3 Dimensions: 1800x 1500 x 1300 mm

GENERAL SPECIFICATIONS

Equipment Type Test Temp. Range: -25°C ile +30°C

Maximum Test Temperature: 55°C

Maximum Humidity: 50 RH

TESTS PERFORMED

ATP Cooling Equipment Test

TEST STANDARDS

ATP Handbook 2020



EMI/EMC TESTS



MIL-STD-461 TESTS

- CE 101
- CE 102
- CS 101
- CS 114
- CS 115
- CS116
- CS118
- RE 101
- RE 102
- RS 101
- RS 103

MIL-STD-1275 TESTS

- INCREASE OF VOLTAGE SPREAD LEVEL
- FLACTUATION OF VOLTAGE SPREAD LEVEL
- RAPID HIGH VOLTAGE APPLICATION
- VOLTAGE OPERATION RANGE
- REVERSE POLARISATION APPLICATION
- MEASUREMENT OF OPERATION START
- VOLTAGE FLUCTUATION

MIL-STD-704 TESTS

- LDC101
- LDC102
- LDC103
- LDC104
- LDC105
- LDC201
- LDC301
- LDC302
- LDC401
- LDC501
- LDC601
- LDC602

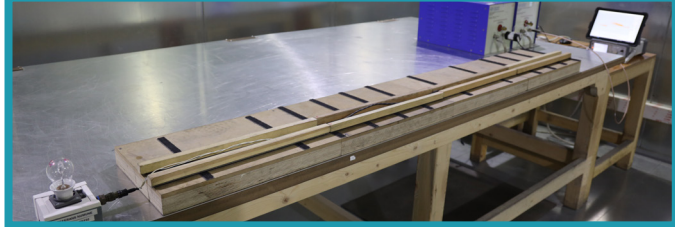
MIL-STD-461 TESTS

CE 101



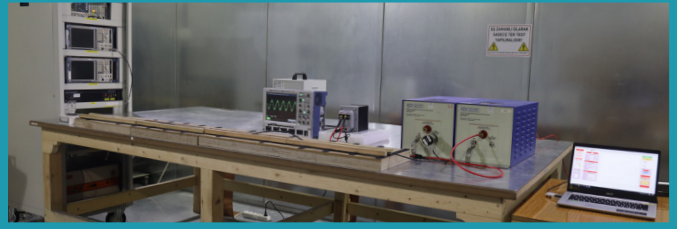
The CE101 test method is used to verify whether electromagnetic emissions from the tested equipment, power input cables, including returns, if it exceeds the described requirements. It is to measure the unwanted electrical noise levels connected via the power cables of the EUT (Equipment Under Test) with an AC or DC power input between dec frequencies of 30Hz-150kHz.

CE 102



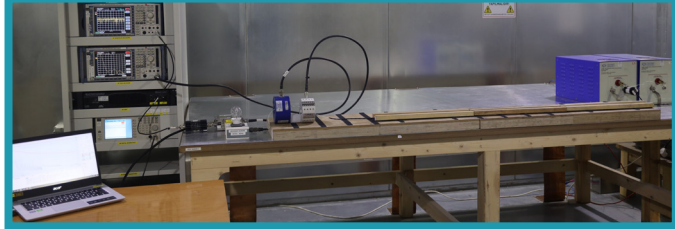
CE102 test used to verify the EUT that is AC or DC power input between 10kHz-10MHz frequency that is passed from the experiment EUT connection via power cables-way is to measure unwanted harmonic current levels. The emission values of EUT should not exceed the limits specified in the specified standards.

CS 101



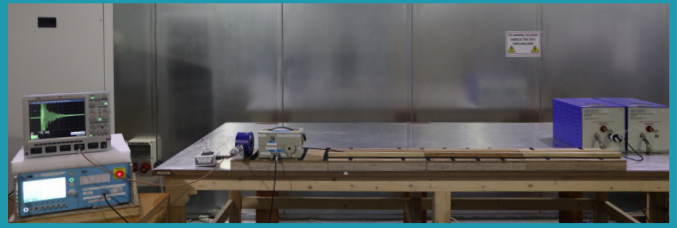
CS101 conducted susceptibility power lines tests is a sensitivity test applied to equipment and subsystem alternating current and direct current input power cables in frequency range between 30Hz and 150kHz. It is applied to test the immunity of the device to distortions that may occur on the power cables.

CS 114



CS114 test, transmission susceptibility test is a test performed to check the immunity of electrical or electronic devices with AC or DC power input and data line between 10kHz- 200MHz frequencies against the disturbances transmitted via cable.

CS 115



In CS115 test, pulses are injected into the cable bundles to measure the susceptibility of the tested device to pulses. In the CS115 test, a square pulse is applied at a repetition rate of 30 Hz with a width exceeding 30 nanoseconds with a rise and fall time of approximately 2 ns.

CS 116



In the CS116 test, a Dumped Sinusoidal Signal is applied to the tested device. In these tests, the transient effect generated by the pulse generator is applied separately to the wire harnesses of the device under the test with the current injection probes. The pulse applied during the test is observed on the oscilloscope using current monitor probes.

MIL-STD-461 TESTS

RE 101



The RE101 radiated emission magnetic field standard provides a test method for measuring unwanted signals emitted into the air from an electrical or electronic device and its cables. If left unchecked, these signals are connected to other equipment wiring or may enter the equipment chassis and internal conductors. Such signals have the potential to induce current in equipment conductors and cause harmful interference in both areas.

RE 102



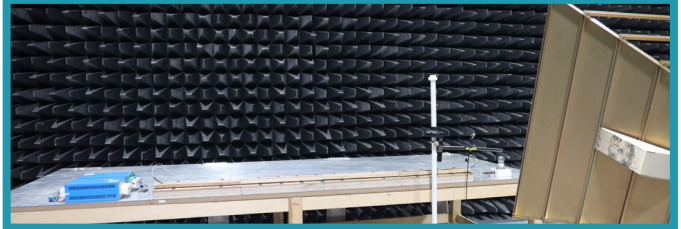
RE102 radiated emission electric field test standard, just like the RE101 standard, offers a test method to measure unwanted signals emitted into the air from an electrical or electronic device and the cables on it. Such unchecked signals are connected to other equipment wiring or may enter the equipment chassis and internal conductors. These unwanted signals have the potential to induce current in equipment conductors and cause harmful interference.

RS 101



RS101 radiated susceptibility magnetic field standard provides a test method for evaluating radiated susceptibility from equipment and subsystem protections, including electrical cable interfaces, between 30 Hz to 100 kHz frequency range. In radiated susceptibility tests, it is tested whether the undesired signals coming to the equipment under test will disrupt the operation of the equipment. If electromagnetic signals at every frequency given within the limit values specified in the RS101 test method do not cause any deterioration in the operation of the equipment, the test is successful.

RS 103



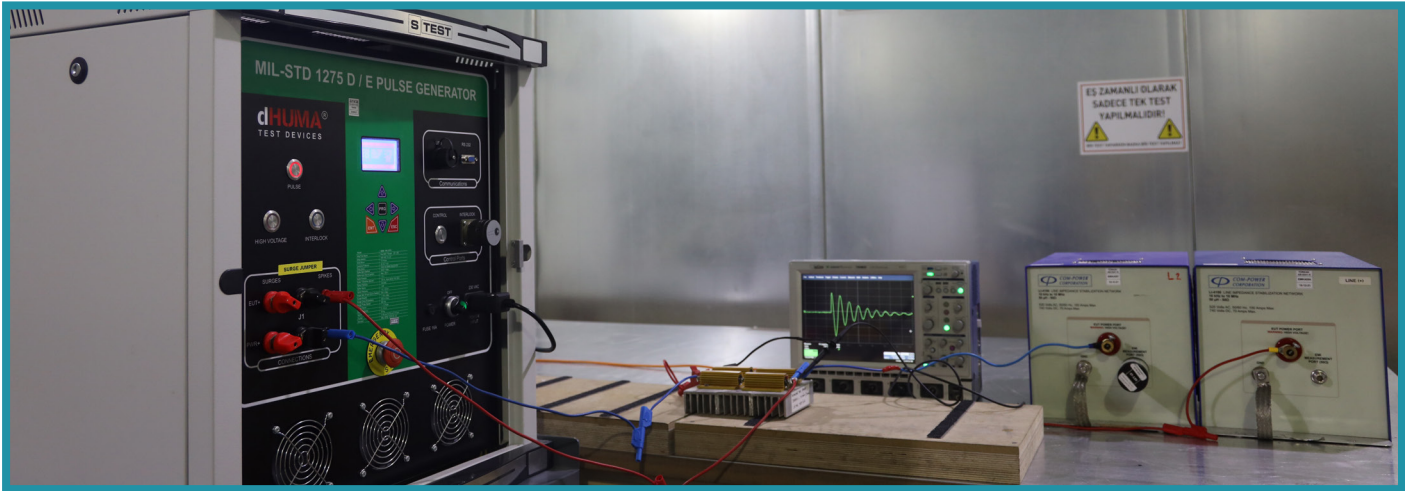
The RS103 radiated susceptibility electric field test applies to equipment and subsystem enclosures and all interconnected cables. The level of these tests varies between 10V/m and 200V/m in the frequency range of 10kHz-40GHz, depending on the place of use of the tested devices or equipment. The requirement for this test frequency range is: 2 MHz to 30 MHz frequency range for military ships, military aircraft including flight line, navy ships excluding aircraft and other equipment optionally, 30 MHz to 1 GHz range for all of these, 1 GHz to 18GHz range for all of these, 18 GHz to 40 GHz range is optional. Optional ones (optional) are only required if specified in the procurement specification.

CS 118



ElectroStatic Discharge (ESD) Test is one of the Electromagnetic Compatibility (EMC) tests. ESD Test is an EMC test used to determine the performance level of electrical or electronic devices against an electrostatic discharge (discharge). The ESD Test is applied to prevent damage caused by electrostatic charge and discharge.

MIL-STD-1275 TESTS



Emitted Voltage Spikes

It is expected that no malfunction will be observed in the tested device by applying sudden voltage spikes in less than 3 ns.

Injected Voltage Surges

A voltage surge is a positive transient that exceeds the supplied rated voltage. This can happen when a high current or inductive load is suddenly interrupted. The most common occurrence of a positive voltage surge or “alternator discharge” occurs when the alternator attempts to charge a partially or completely discharged battery pack and the connection to the battery positive terminal is suddenly lost.

Emitted Voltage Surges

It is expected that no malfunction will be observed in the tested device by applying sudden voltage spikes in more than 3 ns.

Reverse Polarity

Reverse polarity is defined as the reversed connection of the power terminals of the device under test to the vehicle’s power system. The positive (+) terminal of the device under test is connected to the negative (-) or “ground” terminal of the vehicle’s power supply system. The negative (-) terminal of the device under test is connected to the positive (+) terminal of the vehicle’s power supply system. The operating equipment must be self-protected against damage from reverse polarity

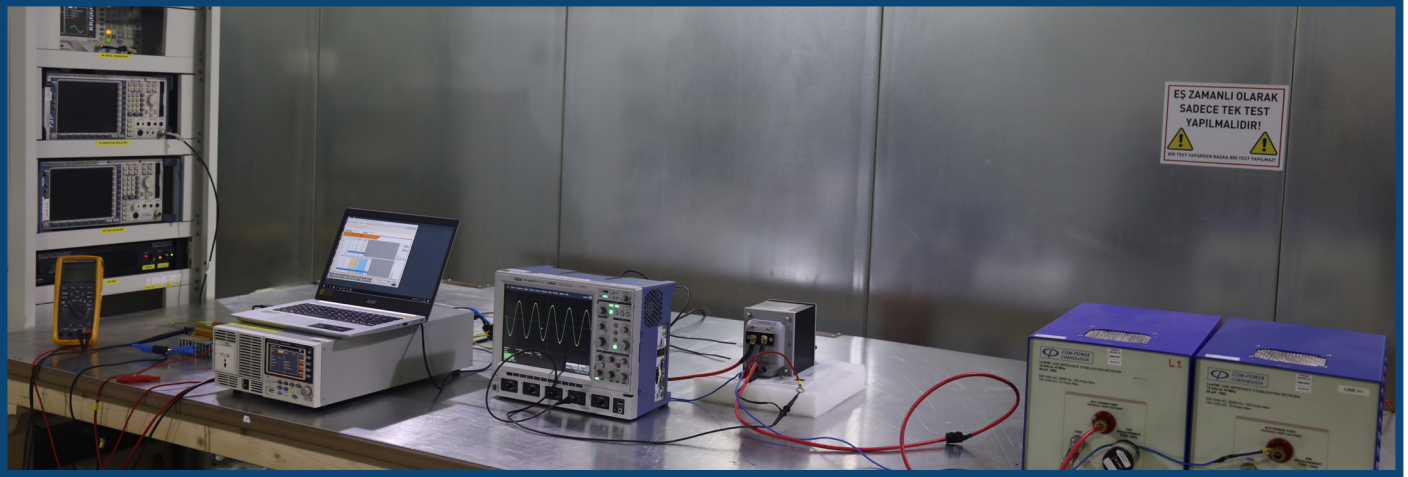
Injected Voltage Spikes

It is aimed to see the injected voltage ripple and to prevent any deterioration in the device.

Starting Operation

This test applies to use equipment operating when subjected to engine starting disturbances. The electrical power during an engine start event is sufficient for the utility equipment to provide the performance level specified in the detailed manual of the utility equipment.

MIL-STD-704 TESTS



LDC101 Load Measurements

This test is performed to verify that the 28V DC power handling equipment meets the load limits, inrush limits, current distortion limits, and current spectrum limits that the usage equipment performance specification document may require. The operating equipment must not be damaged or cause a malfunction.

LDC103 Voltage Distortion Spectrum

This test is performed to verify that 28V DC power handling equipment operates and maintains specified performance when subjected to voltage disturbances at the frequencies and amplitudes specified in MIL-STD-704. The operating equipment must not be damaged or cause an unsafe condition.

LDC105 Normal Voltage Transitions

This test is performed to verify that 28V DC power handling equipment operates and maintains specified performance when subjected to steady-state voltage rise or drop in the very small seconds specified in MIL-STD-704.

LDC301 Voltage Steady State Limits

This test is performed to verify that 28V DC power handling equipment operates and maintains specified performance when powered within the Abnormal Low Steady State (ALSS) limits and Abnormally High Steady State (AHSS) limits. This test takes a minimum of 30 minutes.

LDC401 Voltage Steady State Limits

This test is performed to verify that 28V DC power handling equipment is operating and maintaining specified performance within the Emergency Low Steady State (ELSS) limits and Emergency High Steady State (EHSS) limits. The operating equipment must not be damaged or cause an unsafe condition. This test takes a minimum of 30 minutes.

LDC601 Power Down

This test is performed to verify that 28V DC power handling equipment is not damaged or causing an unsafe condition after power outages to the aircraft.

LDC102 Voltage Steady State Limits

This test is performed to verify that 28V DC power handling equipment operates and maintains specified performance when powered within the Normal Low Steady State (NLSS) limits and Normal High Steady State (NHSS) limits. This test takes a minimum of 30 minutes.

LDC104 Total Ripple

This test is performed to verify that 28V DC power handling equipment operates and maintains specified performance when powered within the Normal Low Steady State (NLSS) limits and Normal High Steady State (NHSS) limits. This test takes a minimum of 30 minutes.

LDC201 Power Failure

This test is performed to verify that 28V DC power handling equipment operates and maintains specified performance when subjected to power interruptions.

LDC302 Abnormal Voltage Transitions

This test is used to verify that 28V DC power handling equipment operates at specified performance when subjected to abnormal voltage transients as specified in MIL-STD-704.

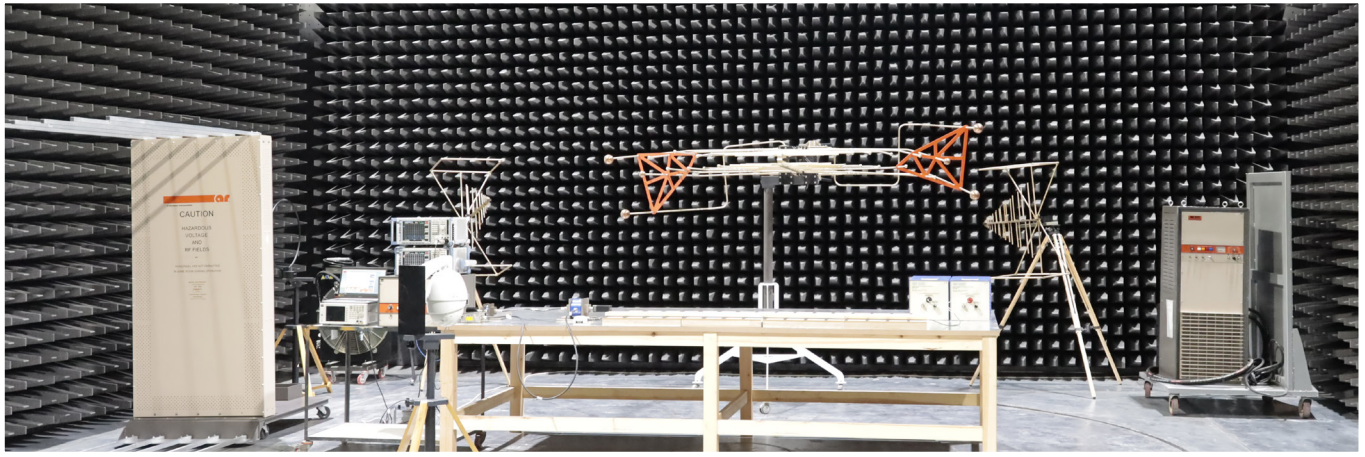
LDC501 Initial Voltage Transitions

This test is used to verify that 28V DC power handling equipment operates at specified performance when subjected to abnormal voltage transients as specified in MIL-STD-704.

LDC602 Reverse Polarity

This test is used to verify that 28V DC power handling equipment operates at specified performance when subjected to abnormal voltage transients as specified in MIL-STD-704.

EMI/EMC TEST CHAMBERS



TEST CHAMBER-1

GENERAL SPECIFICATIONS

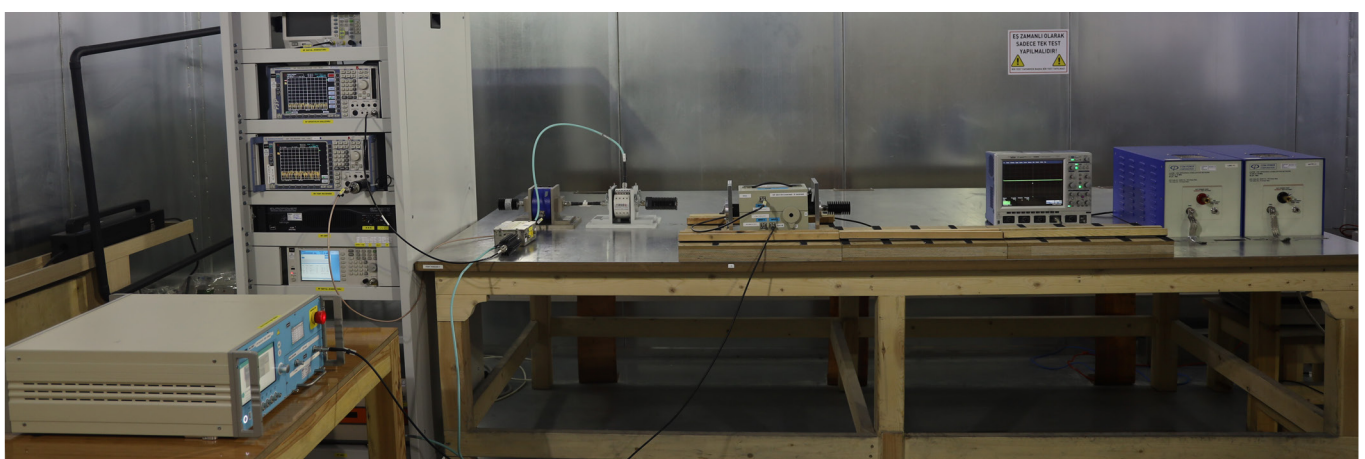
It is semi anechoic. (Semi Anechoic Chamber)
 It can be used as Full Anechoic Chamber by adding RF Absorber which can be carried onto the floor and RF Ferrites.
 It has exhaust extraction system.
 Chamber Dimensions :13000x10000x9000 mm
 Door 1 Dimensions: 4200x4750 mm
 Rotating Table Diameter: 6 meters
 Rotating Table Load Bearing Capacity: 70 tons

MILITARY STANDARDS

MIL-STD-461E/F/G
 MIL-STD-464C
 MIL-STD-1275 D/E
 RTCA DO-160 E/F/G

VEHICLE STANDARDS

ECE R10
 TSE/EN/ISO 13766-1
 TSE/EN/ISO 13766-2



TEST CHAMBER-2

GENERAL SPECIFICATIONS

It is s Semi Anechoic. (Semi Anechoic Chamber)
 It can be used as Full Anechoic Chamber by adding RF Ferrites.
 Absorber which can be carried onto the floor and RF Ferrites.
 It has exhaust extraction system.
 Chamber Dimensions: 6850x5900x3800 mm
 Door 2 Dimensions: 1000x2000 mm

CIVIL STANDARDS

TSE/IEC/EN 55014-1	TSE/IEC/ 60945	TSE/IEC/EN 50470-1
TSE/IEC/EN 55024	TSE/IEC/EN/CISPR 55011	TSE/IEC/EN 61000-4-3
TSE/IEC/EN 61000-4-5	TSE/IEC/EN 61000-3-3	TSE/IEC/EN 61000-4-12
TSE/IEC/EN 61000-6-1	TSE/IEC/EN 61000-4-8	TSE/IEC/EN 61326-1
TSE/IEC/EN 62052-11	TSE/IEC/EN 61000-6-3	TSE/IEC/EN 55015
TSE/IEC/EN 55014-2	TSE/IEC/EN/CISPR 55032	TSE/IEC/EN 61000-4-4
TSE/IEC/EN 61000-3-2	TSE/IEC/EN 61000-4-2	TSE/IEC/EN 61000-4-13
TSE/IEC/EN 61000-4-6	TSE/IEC/EN 61000-4-11	TSE/IEC/EN 61547
TSE/IEC/EN 61000-6-2	TSE/IEC/EN 61000-6-4	

OUR RESOURCES



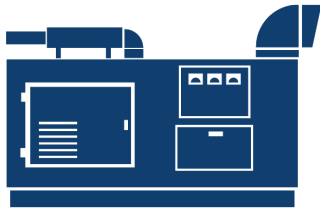
BREAK and WORK ROOM



24 HOURS CAMERA RECORD



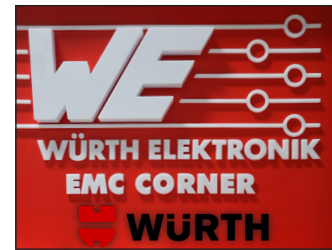
10 TONS CRANE



GUARANTEED TEST
OPPORTUNITY WITH 400 KVA
UPS 500 KW GENERATOR POWER



3 TONS FORKLIFT-1 TON
PALLET TRUCK



WÜRTH SUPPORT DESK

