

**SIEMENS SANAYİ ve TİCARET A.Ş.**  
**A&D-QD LABORATORY TEST and DEVICE LIST**

<b>Laboratory Name</b>	: SIEMENS San.ve Tic.A.Ş. Otomation ve Control Systems Quality Services Laboratory		
<b>Adress</b>	: Yakacak Cad. No : 111 Kartal-İSTANBUL		
<b>Responsible Person</b>	: Serhat Ergüven		
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Tests and Standards	Measurement Device	Range, Accuracy
<b>METAL MATERIAL TEST</b>		
Tensile Strength Test-DIN EN 10002-1	ZWICK Z100-ZWICK 1474 Universal Test Machines	Max.100 kN, Accuracy, Class 0.5
Hardness Measurements Brinell Rockwell B ve C -DIN EN ISO 6506-1, DIN EN ISO 6508-1	WOLPERT 2Rc Macrohardness Test Device	1-250 kg, Accuracy ±%1 HB / ±0,5 HR
Microhardness Measurement(Vickers) DIN EN ISO 6507, DIN 50190	ZWICK 3121.200/00 Microhardness Test Device	10 gr-10 kg, Accuracy ±%1 HV
<b>PLASTIC MATERIAL TESTS</b>		
Tensile Strength Test -DIN EN ISO 527-1	ZWICK Z100-ZWICK 1474 Universal Test Machines	Max.100 kN, Accuracy, Class 0.5
Flexural Strength Test-DIN EN ISO 178	ZWICK Z100-ZWICK 1474 Universal Test Machines	Max.100 kN, Accuracy, Class 0.5
Charpy Impact Strength-DIN EN ISO 179	ZWICK 5102.100/00 Impact Test Device	0,5-4 Joule, Accuracy ±%0,5
Elasticity Modulus Determination-DIN EN ISO 527-2	ZWICK Z100-ZWICK 1474 Universal Test Machines	Max.100 kN, Accuracy, Class 0.5
Comparative Tracking Index Test-DIN IEC 60112	SIEMENS Made Test Device	Max.600 V, Accuracy ±% 1,5
Breakdown Voltage Test-DIN EN 60243-1	SIEMENS Isolation Test Device	Max..65 kV, Accuracy, Class 1,5
Surface and Volume Resistivity Test-DIN IEC 60093	SIEMENS Teraohmetre ve SIEMENS Made Measurement Probes	Max.100 Teraohm, Accuracy ±5kΩ
Water Absorption Test-DIN EN ISO 62	METTLER Balance	Max.2600 gr, Accuracy ±0,01 gr
Density Measurement-DIN 53479	METTLER Balance and Accesories	Max..2600 gr, Accuracy ±0,01 gr
Melt Flow Index Test-DIN EN ISO 1133	ZWICK 4105 MFI Test Device	Max..280°C, Accuracy ±1,5°C
Determination of the Textile-Glass and mineral filler content-DIN EN ISO 1172	HERAEUS Furnace	Max..1100°C, Accuracy±13°C Smif C13
<b>PAINT TESTS</b>		
Erichsen Cupping Test-DIN EN ISO 1520	ERİCHSEN Test Device	1-10 mm, Accuracy 0,1 mm
Gloss Measurement-DIN EN ISO 2813	ERİCHSEN Glossmeter	Max.93 Gloss
Conical Mandrel Bending Test-DIN EN ISO 6860	ERİCHSEN Test Device	---
Cylindrical Mandrel Bending Test -DIN EN ISO 1519	SIEMENS Made Test Device	---
Impact Test-DIN EN ISO 6272	ERİCHSEN Test Device	Max.1 kgm, Accuracy
Cross-Cut Test-DIN EN ISO 2409	ERİCHSEN Test Device	---
Thickness Measurement-DIN EN ISO 2178, DIN EN ISO 2360	HELMUT FISCHER Multiscope	Max.950 µm, Accuracy ±10 µm
<b>CORROSION TESTS</b>		
Salt Spray Corrosion Test(NSS)-DIN 50021, ISO 9227, ASTM B117	LIEBISCH Test Device	Max.35°C, Accuracy ±1°C
Determination of the Resistance to Humidity-DIN EN ISO 6270-2	LIEBISCH Test Device	Max.40°C/>%95 Rel.Humidity, Accuracy ±1°C
Corrodokote Korozyon Deneyi-DIN EN ISO 4541	LIEBISCH Test Device	Max..40°C/>%95 Rel.Humidity, Accuracy ±1°C
<b>THICKNESS MEASUREMENTS</b>		
Microscopical method-DIN EN ISO 1463	LEITZ Metalography Microscope	Max. X1250, Accuracy 2 µm
Coulometric Method-DIN EN ISO 2177	HELMUT FISCHER Couloscope	Max..20 µm, Accuracy ±1 µm
NDT Methods(Magnetik and Eddy Current)-DIN EN ISO 2178, DIN EN ISO 2360	HELMUT FISCHER Multiscope	Max.950 µm, Accuracy±10 µm
Coating Mass Measurement of the Hot-Dip Zinc Coated Stell-DIN EN 10142	METTLER Balance and Accesories	Max..2600 gr, Accuracy 0,01 gr
<b>POST INSULATOR TESTS</b>		
Bending Test-DIN IEC 60660	BEKA Test Device	Max.2000 kp, Accuracy, Class 1
Tensile Strength Test -DIN IEC 60660	ZWICK Z100-ZWICK 1474 Universal Test Machines BEKA Test Device	Max..100 kN, Accuracy, Class 0.5 Max.2000 kp, Accuracy, Class 1

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<b>OTHER TESTS</b>		
Surface Raughness Measurement(Ra,Rz,Rmax)-DIN 4768	MAHR PERTHEN M4P Perthometer	Ra-Rz-R max., Accuracy %5
Dimensional Measurements(Sample, Tool etc...)	C.Z.JENA Measurement Microscope and ZEISS 3D Measurement Device  OGP CNC500 Video Measuring System	Max. X:250 mm / Y:125 mm, Accuracy ±0,001 mm Max.300 mm, Accuracy ±0,002 mm  Measurement Range 500X450X200 mm Accuracy for X and Y için:E2=(2,5+5L/1000)µm for Z E1=(3,0+8L/1000) µm
Conductivity Measurement-ASTM E1004 and Thomson Bridge Method	DR.INSTUT FÖRSTER	15-58 m/Ωmm <sup>2</sup> , Accuracy ±%0,5
Direnç Ölçümü-Thomson Köprüsü Metodu	Thomson Bridge	1 mΩ-100 Ω, Accuracy ±0,005-±3 Ω
Spring Force Measurements-DIN 2095, DIN 2097	ZWICK Z100-ZWICK 1474 Universal Test Machines REICHERTER Spring Force Measurement Device	Max.100 kN, Accuracy, Class 0.5 0-20N / 0-200 N, Accuracy Force %0,2 / Distance ±0,02 mm
Torsional Test and Minimum Torques for Bolts and Screws-DIN EN ISO 2702, DIN EN 20898-7	AMATEK Torqmeter BELZER Torqmeter RAHSOL Torqmeter	Max.6 Nm, Accuracy ±0,03 Nm 1,8-17,1 Nm, Accuracy ±%4 Nm 10-300 Nm, Accuracy ±%1

**Siemens A.Ş. has ISO 9000 certificate and all laboratory measurement and test devices are calibrated by accredited calibration laboratories.**