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Accreditation No: LAB 041

Awarded to

Electrical Measurement & Test Laboratory (EMTL), PCSIR Labs. Complex, Lahore – Pakistan.

The scope of accreditation is in accordance with the standard specifications outlined in the following page(s) of this document. The accredited scope shall be visible and legible in areas such as customer service, sample-receiving section etc and shall not mislead its users.

The accreditation was first time granted on **06-09-2010** by Pakistan National Accreditation Council.

The laboratory complies with the requirements of **ISO/IEC 17025:2005**.

The accreditation requires regular surveillance, and is valid until **05-03-2017**.

The decision of accreditation made by Pakistan National Accreditation Council implies that the organization has been found to fulfill the requirements for accreditation within the scope.

The organization however, itself is responsible for the results of performed measurements/tests.

PAKISTAN NATIONAL ACCREDITATION COUNCIL

Date

Director General

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Testing Laboratory.

Accreditation Scope of Electrical Measurement & Test Lab. at PCSIR
Laboratories Complex, Ferozepur Road, Lahore-Pakistan.

Permanent laboratory premises

Materials/P roducts tested	Testing field	Types of test/ Properties measured	Reference to standardized method / Internal method reference
Electric Cables (Cont....)	Electrical & Mechanical Properties	Electrical Resistance of conductors	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 BS EN 60228:2005 DDS-8:2007 DDS-82:2007 P-29:2010
		Voltage test on cores	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992+ A1:1997 IEC 60227-5:2011 DDS-8:2007 DDS-82:2007
		Voltage test on completed cable	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 DDS-8:2007 DDS-82:2007 P-29:2010
		Long term resistance of insulation to DC	IEC 60227-5:2011
		Insulation resistance Test	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 DDS-8:2007 DDS-82:2007

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Electric Cables (Cont....)	Electrical & Mechanical Properties	Resistivity of extruded semi conducting screen applied over conductor and insulation	IEC 60502-2:2005 P-29:2010
		Checking of compliance with constructional provisions	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 DDS-8:2007 DDS-82:2007 P-29:2010
		Measurement of insulation thickness	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60811-201:2012 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 DDS-8:2007 DDS-82:2007 P-29:2010
		Measurement of sheath thickness	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60811-202.:2012 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 DDS-8:2007 DDS-82:2007 P-29:2010
		Measurement of separation sheath/ bedding thickness	IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 DDS-8:2007 P-29:2010
		Measurement of overall diameter	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 IEC 60811-203:2012 DDS-8:2007 P-29:2010

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Electric Cables (Cont....)	Electrical & Mechanical Properties	Thickness of extruded inner covering	IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005
		Diameter of armoured wires and tapes	IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 DDS-8:2007 P-29:2010
		Ovality	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011
		Tensile strength and % elongation of insulation before and after ageing	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 IEC 60811-501 :2012 IEC 60811-401 :2012 DDS-8:2007 DDS-82:2007 P-29:2010
		Tensile strength and % elongation of Sheath before and after ageing	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 IEC 60811-501 :2012 IEC 60811-401:2012 DDS-8:2007 DDS-82:2007 P-29:2010
		Loss of mass test on insulation and Sheath	IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 IEC 60811-409:2012 DDS-8:2007 DDS-82:2007 P-29:2010
		Pressure test at high temperature on insulation and Sheath .	IEC 60227-1: 2007 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60811-508:2012 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 DDS-8:2007 DDS-82:2007 P-29:2010

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<p align="center">Electric Cables (Cont....)</p>	<p align="center">Electrical & Mechanical Properties</p>	<p>Cold Bend test of insulation and Sheath at low temperature</p>	<p>IEC 60227-1: 2007 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60811-504:2012 DDS-8:2007 DDS-82:2007</p>
		<p>Cold Elongation test of insulation and Sheath at low temperature</p>	<p>IEC 60227-1: 2007 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60811-505:2012 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 DDS-8:2007 DDS-82:2007 P-29:2010</p>
		<p>Impact test of PVC insulation and Sheath at low Temperature</p>	<p>IEC 60227-1: 2007 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60811-506:2012 P-29:2010</p>
		<p>Test for resistance of PVC Insulation and Sheath to Cracking (Heat shock test)</p>	<p>IEC 60227-1: 2007 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 IEC 60811-509:2012 DDS-8:2007 DDS-82:2007 P-29:2010</p>
		<p>Flexing test of completed cable</p>	<p>IEC 60227-1: 2007 IEC 60227-2:1997 + A1:2003 IEC 60227-5:2011</p>
		<p>Test of flame retardance of completed cable</p>	<p>IEC 60227-1: 2007 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 IEC 60332-1-1:2004 IEC 60332-1-2:2004</p>
		<p>Water absorption test</p>	<p>IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 IEC 60811-402:2012 DDS-8:2007 DDS-82:2007 P-29:2010</p>

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Electric Cables	Electrical & Mechanical Properties	Colour fastness test for insulation & sheath	DDS-8:2007
		Hot set test for insulation & sheath	IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 IEC 60811-507:2012 DDS-82:2007 P-29:2010
		Shrinkage test for insulation and sheath	IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 IEC 60811-502:2012 IEC 60811-503:2012 DDS-82:2007 P-29:2010
		Bending test of completed cable	IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005
		Measurement of the thickness of semi conducting compound over insulation and conductor	IEC 60502-2:2005 P-29:2010
		Thermal stability test for PVC insulation and sheath	IEC 60227-1: 2007 IEC 60227-3:1993 + A1:1997 IEC 60227-4:1992 + A1:1997 IEC 60227-5:2011 IEC 60502-2:2005 IEC 60811-405:2012
		Additional ageing test on pieces of completed cables	IEC 60502-1:2004 + A1:2009 IEC 60502-2:2005 P-29:2010
Electric Fans (Cont....)	Safety Testing	Classification	IEC 60335-1:2016 IEC 60335-2-80:2015 Excluding Clause: 15.1, 15.2, 19.11, 22.32 & 24.1 Excluding Annex: B, F, G, J, Q, R, S & T
		Marking and instructions	
		Protection against access to live parts	
		Power input and current	
		Heating	
		Leakage current and electric strength at operating temperature	
		Transient over voltages	
		Moisture resistance	
		Leakage current and electric strength	
		Abnormal operation	
		Stability and mechanical hazards	
		Mechanical strength	
		Construction	
		Internal wiring	
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Electric Fans	Safety Testing	Supply connection and external flexible cords	
		Terminals for external conductor	
		Provision of earthing	
		Screws and connections	
		Clearances, creepage distance and solid insulation	
		Resistance to heat and fire	
		Resistance to rusting	
		Radiation, toxicity and similar hazards	
Electric Fans	Performance Testing	Marking	IEC 60879:1986 PS-1:2010
		Test of Air Performance (Air Delivery Test)	
		Measurement of Speed of the Fan	
		Measurement of Power Factor	
		Measurement of Power Input	
		Service Value	
Self Ballasted Fluorescent Lamps	Safety Testing	Marking	IEC 60968:2015
		Interchangeability, mass bending moment	
		Protection against Electric Shock	
		Insulation Resistance and Electric Strength	
		Mechanical Strength	
		Cap Temperature Rise	
		Resistance to Heat	
		Resistance to Flame and Ignition	
		Creepage distances and clearance	
		Photo-biological safety	
Self Ballasted Compact Fluorescent Lamps (Cont....)	Performance Testing	Marking	IEC 60969 :2016
		Initial power	
		Initial luminous flux	
		Chromaticity coordinates	
		Colour rendering index (CRI)	
		Starting time	
		Low temperature and low supply voltage	

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		starting	
		run-up time	
		Lumen Maintenance	
		Premature lamp failure rate	
		Life time	
		Switching withstand	
		Dimensions	
Double Capped Fluorescent Lamps	Performance Testing	Caps	IEC 60081 :1997 + A1:2000 + A2:2003
		Dimensions	
		Starting Characteristics	
		Electrical & Cathode Characteristics	
		Photometric Characteristics	
		Lumen Maintenance	
		Marking	
Ballasts for Tubular Fluorescent Lamps	Performance Testing	Marking	IEC 60921:2004 + A1:2006
		Voltage at Terminations of Lamp or Starter (If any)	
		Pre-Heating Conditions	
		Lamps Power and Current	
		Circuit Power Factor	
		Supply Current	
		Maximum Current in any Lead to a Cathode	
		Magnetic Screening	
Self Ballasted LED-Lamps	Performance Testing	Marking	IEC / PAS 62612:2009
		Dimensions	
		Lamp wattage	
		Luminous Flux	
		Correlated colour temperature and colour rendering	

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