

Laboratory	ABB India Limited, Low Voltage Breakers & Switches Testing Laboratory, Sy. No. 88/3 & 88/4, Kasaba Hobli, Basavanahalli, Nelamangala, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	11.09.2015
Certificate Number	T-3557	Valid Until	10.09.2017
Last Amended on	-	Page	2 of 8

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Circuit-Breakers for Over Current Protection for House Hold and Similar Installation 0.5A to 125A, 230/415V AC	Test of dielectric properties and isolating capability.	IEC 60898-1: 2015 IEC 60898-2: 2003 Cl. No. 9.7	0.1 kV to 5.0 kV (AC) & 0.5 kV to 15 kV impulse withstand
		Test of temperature-rise.	IEC 60898-1: 2015 IEC 60898-2: 2003 Cl. No. 9.8	2 A to 400 A/ 1 °C to 150 °C, LC-0.1 A/0.1 °C
		Test of mechanical and electrical endurance.	IEC 60898-1: 2015 IEC 60898-2: 2003 Cl. No. 9.11	16 A to 320 A at 415 V.
		Test of resistance to heat	IEC 60898-1: 2015 IEC 60898-2: 2003 Cl. No. 9.14	(-)40 °C to 180 °C, LC-0.1 °C / 0.1%RH
3.	Residual Current Operated Circuit Breaker for House Hold and Similar Uses 16A to 125A, 230/415V AC	Mechanism.	IEC 61008-1, 2013 IEC 61008-2-1, 1990 IEC 61008-2-2, 1990 IEC 61009-1, 2013 IEC 61009-2-1, 1991 IEC 61009-2-2, 1991 IEC 60755, 2008 Cl. No. 8.1.2	Qualitative
		Clearances & creepage distances	IEC 61008-1, 2013 IEC 61008-2-1, 1990 IEC 61008-2-2, 1990 IEC 61009-1, 2013 IEC 61009-2-1, 1991 IEC 61009-2-2, 1991 IEC 60755, 2008 Cl. No. 8.1.3	0.01 mm to 100 mm

Laboratory	ABB India Limited, Low Voltage Breakers & Switches Testing Laboratory, Sy. No. 88/3 & 88/4, Kasaba Hobli, Basavanahalli, Nelamangala, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	11.09.2015
Certificate Number	T-3557	Valid Until	10.09.2017
Last Amended on	-	Page	3 of 8

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Residual Current Operated Circuit Breaker for House Hold and Similar Uses 16A to 125A, 230/415V AC	Test of reliability of screws, current-carrying parts and connections	IEC 61008-1, 2013 IEC 61008-2-1, 1990 IEC 61008-2-2, 1990 IEC 61009-1, 2013 IEC 61009-2-1, 1991 IEC 61009-2-2, 1991 IEC 60755, 2008 Cl. No. 9.4	0.5 Nm to 25 Nm
		Tests of reliability of screw-type terminals for external copper conductors	IEC 61008-1, 2013 IEC 61008-2-1, 1990 IEC 61008-2-2, 1990 IEC 61009-1, 2013 IEC 61009-2-1, 1991 IEC 61009-2-2, 1991 IEC 60755, 2008 Cl. No. 9.5	10 N to 300 N
		Test of dielectric properties and isolating capability	IEC 61008-1, 2013 IEC 61008-2-1, 1990 IEC 61008-2-2, 1990 IEC 61009-1, 2013 IEC 61009-2-1, 1991 IEC 61009-2-2, 1991 IEC 60755, 2008 Cl. No. 9.7	0.1 to 5.0kV (AC) & 0.5kV to 15kV impulse withstand
		Test of temperature-rise	IEC 61008-1, 2013 IEC 61008-2-1, 1990 IEC 61008-2-2, 1990 IEC 61009-1, 2013 IEC 61009-2-1, 1991 IEC 61009-2-2, 1991 IEC 60755, 2008 Cl. No. 9.8	2 A to 400 A 1 °C to 150 °C

Laboratory	ABB India Limited, Low Voltage Breakers & Switches Testing Laboratory, Sy. No. 88/3 & 88/4, Kasaba Hobli, Basavanahalli, Nelamangala, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	11.09.2015
Certificate Number	T-3557	Valid Until	10.09.2017
Last Amended on	-	Page	4 of 8

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Residual Current Operated Circuit Breaker for House Hold and Similar Uses 16A to 125A, 230/415V AC	Test of resistance to heat	IEC 61008-1, 2013 IEC 61008-2-1, 1990 IEC 61008-2-2, 1990 IEC 61009-1, 2013 IEC 61009-2-1, 1991 IEC 61009-2-2, 1991 IEC 60755, 2008 Cl. No. 9.14	(-)40 °C to 180 °C
4.	Miniature Circuit Breaker Board for Voltage upto and Including 1000 VAC 2 A to 400 A	Verification of temperature rise limits	IEC 61439-1: 2011 IEC 61439-2: 2011 Cl. No. 9.2	2 A to 400 A/ 1 °C to 150 °C
		Verification of dielectric properties	IEC 61439-1: 2011 IEC 61439-2: 2011 Cl. No. 9.3	0.1 kV to 5.0 kV (AC) & 0.5 kV to 15 kV impulse
		Verification of clearances and creepage distances.	IEC 61439-1: 2011 IEC 61439-2: 2011 Cl. No. 9.4	0.01 mm to 100 mm
5.	Low Voltage Circuit breakers 16 A to 6000 A, 230/415 V AC	Tripping limits and characteristics.	IEC 60947-1: 2014 IEC 60947-2: 2013 Cl No. 8.3.3.1	2 A to 15000 A (AC)
		Dielectric properties.	IEC 60947-1: 2014 IEC 60947-2: 2013 Cl No. 8.3.3.2	0.1 kV to 5.0 kV AC & 0.5 kV to 15 kV impulse withstand
		Mechanical operation and operational Performance capability.	IEC 60947-1: 2014 IEC 60947-2: 2013 Cl No. 8.3.3.3	16 A to 320 A at 415V (AC)
		Verification of dielectric withstand	IEC 60947-1: 2014 IEC 60947-2: 2013 Cl No. 8.3.3.5	0.1 kV to 5.0 kV (AC)

Laboratory	ABB India Limited, Low Voltage Breakers & Switches Testing Laboratory, Sy. No. 88/3 & 88/4, Kasaba Hobli, Basavanahalli, Nelamangala, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	11.09.2015
Certificate Number	T-3557	Valid Until	10.09.2017
Last Amended on	-	Page	5 of 8

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Low Voltage Circuit breakers 16 A to 6000 A, 230/415 V AC	Verification of temperature-rise.	IEC 60947-1: 2014 IEC 60947-2: 2013 Cl No. 8.3.3.6	2 A to 8000 A AC 1 °C to 150 °C
		Verification of under voltage and shunt releases	IEC 60947-1: 2014 IEC 60947-2: 2013 Cl No. 8.3.3.8	10 V to 600 V AC 12 V to 600 V (DC)
		Verification of main contact position (for circuit breakers suitable for isolation)	IEC 60947-1: 2014 IEC 60947-2: 2013 Cl No. 8.3.3.9	10 N to 500 N
6.	LV Switches, Disconnectors, Switch Disconnectors, and Fuse Combination Units 16 A to 1200A, 230/415 VAC	Temperature rise.	IEC 60947-1: 2014 IEC 60947-3, 2012 Cl. No. 8.3.3.1	32 A to 8000 A 1 °C to 150 °C
		Dielectric properties.	IEC 60947-1: 2014 IEC 60947-3, 2012 Cl. No. 8.3.3.2	0.1 kV to 5.0 kV (AC) & 0.5 kV to 15 kV impulse withstand
		Leakage current.	IEC 60947-1: 2014 IEC 60947-3, 2012 Cl. No. 8.3.3.5	10 V to 600 V (AC) 0.01 mA to 10 A
		Strength of actuator mechanism.	IEC 60947-1: 2014 IEC 60947-3, 2012 Cl. No. 8.3.3.7	2 Nm to 200 Nm
		Operational performance.	IEC 60947-1: 2014 IEC 60947-3, 2012 Cl. No. 8.3.4.1	16 A to 320 A (AC) at 415 V
		Overload test.	IEC 60947-1: 2014 IEC 60947-3, 2012 Cl. No. 8.3.3.7	20 A to 8000 A

Laboratory	ABB India Limited, Low Voltage Breakers & Switches Testing Laboratory, Sy. No. 88/3 & 88/4, Kasaba Hobli, Basavanahalli, Nelamangala, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	11.09.2015
Certificate Number	T-3557	Valid Until	10.09.2017
Last Amended on	-	Page	6 of 8

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
7.	LV Contactors and Motor Starters, (Contactor- 9 A to 1650 A, 440 VAC Coil Voltage Motor Starter- 0.16 A to 100 A, 230 V/415 V)	Temperature rise limits	IEC 60947-1: 2014 IEC 60947-4-1: 2012 Cl. No. 9.3.3.3	10 A to 8000 A (AC) / 1 °C to 150 °C
		Dielectric properties	IEC 60947-1: 2014 IEC 60947-4-1: 2012 Cl. No. 9.3.3.4	0.1 kV to 5.0 kV (AC) & 0.5 kV to 15 kV impulse withstand
		Ability of contactors to withstand overload current	IEC 60947-1: 2014 IEC 60947-4-1: 2012 Cl. No. 9.3.5	10 A to 8000 A 1 N to 900 N
		Test of mechanical and electrical endurance	IEC 60947-1: 2014 IEC 60947-4-1: 2012 Cl. No. 9.3.3.3	16 A to 320 A at 415 V (AC)
8.	Control-Circuit Devices and Switching Elements for Low Voltage Switchgear and Control Gear (0.1 A to 16 A, 400 VAC)	Temperature rise	IEC 60947-5-1: 2009 IEC 60947-5-2: 2012 Cl. No. 8.3.3.3	8.3.3.3-2 A to 400 A 1 °C to 150 °C
		Dielectric properties	IEC 60947-5-1: 2009 IEC 60947-5-2: 2012 Cl. No. 8.3.3.4	0.1 kV to 5.0 kV (AC) & 0.5 kV to 15 kV impulse withstand
		Clearance & creepage distances	IEC 60947-5-1: 2009 IEC 60947-5-2: 2012 Cl. No. 7.1.3	0.01 mm to 100 mm
9.	Low Voltage Fuses for Voltages not Exceeding 1000 VAC or 1500 VDC	Dimensions	IEC 60269-1: 2014 IEC 60269-2: 2013 IEC 60269-3, 2013 Cl. No. 8.1.4	0.01 mm to 100 mm

Laboratory	ABB India Limited, Low Voltage Breakers & Switches Testing Laboratory, Sy. No. 88/3 & 88/4, Kasaba Hobli, Basavanahalli, Nelamangala, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Electrical Testing	Issue Date	11.09.2015
Certificate Number	T-3557	Valid Until	10.09.2017
Last Amended on	-	Page	7 of 8

S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Low Voltage Fuses for Voltages not Exceeding 1000 VAC or 1500 VDC	Resistance	IEC 60269-1: 2014 IEC 60269-2: 2013 IEC 60269-3, 2013 Cl. No. 8.1.5.1	0.001 Ω to 100 MΩ.
		Insulating properties and suitability for isolation.	IEC 60269-1: 2014 IEC 60269-2: 2013 IEC 60269-3, 2013 Cl. No. 8.2	0.1 kV to 5.0 kV (AC) & 0.5 kV to 15 kV impulse withstand
		Temperature rise, power dissipation.	IEC 60269-1: 2014 IEC 60269-2: 2013 IEC 60269-3, 2013 Cl. No. 8.3	2 A to 8000 A 1 °C to 150 °C
		Conventional non fusing current Conventional fusing current	IEC 60269-1: 2014 IEC 60269-2: 2013 IEC 60269-3, 2013 Cl. No. 8.4.3.1	2 A to 8000 A
		Rated current	IEC 60269-1: 2014 IEC 60269-2: 2013 IEC 60269-3, 2013 Cl. No. 8.4.3.2	2 A to 8000 A
		Time current characteristics, gates	IEC 60269-1: 2014 IEC 60269-2: 2013 IEC 60269-3, 2013 Cl. No. 8.4.3.3	2 A to 8000 A
		Overload	IEC 60269-1: 2014 IEC 60269-2: 2013 IEC 60269-3, 2013 Cl. No. 8.4.3.4	2 A to 8000

