

**Laboratory** Relax Pharmaceuticals Pvt. Ltd. (Calibration Division), Plot No. 74,  
Industrial Area-Gondpur, Paonta Sahib, Himachal Pradesh

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** CC-2456 (in lieu of C-1289, C-1290 & C-1291) **Page** 1 of 11

**Validity** 17.11.2017 to 16.11.2019 **Last Amended on** -

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
<b><u>ELECTRO-TECHNICAL CALIBRATION</u></b>				
<b>I.</b>	<b>SOURCE</b>			
1.	DC Current <sup>#</sup>	10 $\mu$ A to 300 $\mu$ A 300 $\mu$ A to 10A 10A to 19A > 19A to 1000A	0.27% to 0.03% 0.03% to 0.11% 0.11% to 0.34% 0.34% to 1.10%	Using Multi Product Calibrator Fluke 5502A with 100 Turns Current Coil By Direct Method
2.	AC Current <sup>#</sup>	<b>50 Hz</b> 30 $\mu$ A to 300mA 300mA to 10A 10A to 19A > 19A to 1000A	0.19% to 0.15% 0.15% to 0.20% 0.20% to 0.52% 0.52% to 1.10%	Using Multi Product Calibrator Fluke 5502A with 100 Turns Current Coil By Direct Method
3.	DC Voltage <sup>#</sup>	1 mV to 10 mV 10 mV to 1000 V	0.80% to 0.09% 0.09% to 0.07%	Using Multi Product Calibrator Fluke 5502A By Direct Method
4.	AC Voltage <sup>#</sup>	<b>50 Hz</b> 10 mV to 300 V 300 V to 1000 V	0.36% to 0.06% 0.06% to 0.07%	Using Multi Product Calibrator Fluke 5502A By Direct Method
5.	DC Resistance <sup>#</sup>	1 $\Omega$ to 300 $\Omega$ 300 $\Omega$ to 300 K $\Omega$ 300 K $\Omega$ to 30 M $\Omega$ 30 M $\Omega$ to 300 M $\Omega$	0.70% to 0.01% 0.01% to 0.02% 0.02% to 0.12% 0.12% to 0.74%	Using Multi Product Calibrator Fluke 5502A By Direct Method
6.	Frequency <sup>#</sup>	45 Hz to 1 MHz	0.13% to 0.22%	Using Multi Product Calibrator Fluke 5502A By Direct Method

**Sangeeta Kunwar**  
Convenor

**Avijit Das**  
Program Director

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7.	Temperature Simulation <sup>#</sup>			
	Pt -100	(-) 200°C to 800 °C	0.3°C	Using Multiproduct Calibrator Fluke 5502A By simulation method
	T/C 'T'	(-) 200°C to 400 °C	0.74°C	
	T/C 'J'	(-) 200°C to 850 °C	0.31°C	
	T/C 'K'	(-) 200°C to 1300 °C	0.5°C	
	T/C 'N'	(-) 200°C to 1200 °C	0.62°C	
	T/C 'R'	0°C to 1700 °C	1.3°C	
	T/C 'S'	0°C to 1700 °C	1.2°C	
II.	<b>MEASURE</b>			
1.	DC Current <sup>§</sup>	10 $\mu$ A to 1A 1A to 10A	0.35% to 0.10% 0.10% to 0.18%	Using 6 ½ DMM Fluke 8846A By Direct Method
2.	AC Current <sup>§</sup>	<b>50 Hz</b> 100 $\mu$ A to 1A 1A to 10A	0.25% to 0.18% 0.18% to 0.25%	Using 6 ½ DMM Fluke 8846A By Direct Method
3.	DC Voltage <sup>§</sup>	1 mV to 10mV 10mV to 10 V 10 V to 1000V	0.42% to 0.05% 0.05% to 0.005% 0.005% to 0.01%	Using 6 ½ DMM Fluke 8846A By Direct Method
4.	AC Voltage <sup>§</sup>	<b>50 Hz</b> 10 mV to 1000V	0.55% to 0.10%	Using 6 ½ DMM Fluke 8846A By Direct Method
5.	DC Resistance <sup>§</sup>	1 $\Omega$ to 10k $\Omega$ 10k $\Omega$ to 10 M $\Omega$ 10 M $\Omega$ to 1 G $\Omega$	0.36% to 0.02% 0.02% to 0.05% 0.05% to 2.32%	Using Digital 6 ½ DMM Fluke 8846A By Direct Method
6.	Frequency <sup>§</sup>	10 Hz to 1MHz	0.08% to 0.07%	Using Digital 6½ DMM Fluke 8846A By Direct Method

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7.	Temperature Simulation <sup>s</sup>			
	RTD	(-) 200 °C to 400 °C	0.27 °C	Using Multi Product fluke 5502A & Digital Multimeter 6.5 8846A By Simulation Method
	T/C 'J'	(-) 200 °C to 1200 °C	0.37 °C	
	T/C 'K'	(-) 200 °C to 1350 °C	0.54 °C	
	T/C 'R'	0 to 1750 °C	0.95 °C	
	T/C 'S'	0 to 1750 °C	0.65 °C	
	T/C 'T'	(-) 200 °C to 400 °C	0.73 °C	
8.	Time <sup>#</sup>	10s to 9000s	1.63% to 0.08%	Using Time Interval Meter By Compression Method

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<b><u>MECHANICAL CALIBRATION</u></b>				
<b>I.</b>	<b>DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)</b>			
1.	Caliper (Vernier/Dial/Digital) <sup>§</sup> L.C.: 0.01 mm	0 to 300 mm	14.0 $\mu$ m	Using Slip Gauge set, Grade '0' & Caliper Checker by Comparison Method As Per IS 3651
2.	External Micrometer <sup>§</sup> L.C.: 0.001 mm	0 to 100 mm	1.8 $\mu$ m	Using Slip Gauge set, Grade '0' by Comparison Method As Per IS 2967
3.	Digital/Dial Thickness Gauge <sup>§</sup> L.C.: 0.001 mm/ 0.01 mm	0 to 10 mm	7.0 $\mu$ m	Using Slip Gauge set, Grade '0' by Comparison Method
4.	Steel Scale <sup>§</sup> L.C.: 0.5 mm	0 to 1000 mm	0.120 mm/m	Using Tape & Scale Measuring Machine (IS-1481)
5.	Measuring Tape <sup>§</sup> L.C.: 1 mm	0 to 10 m	0.23 mm/m	Using Tape & Scale Measuring Machine (IS-1269)
6.	Test Sieves <sup>§</sup> (For Aperture Size Only)	0.1 mm to 3.35 mm	11.8 $\mu$ m	Using Profile Projector (Measurement IS-460)

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<b>II.</b>	<b>WEIGHTS</b>			
<b>1.</b>	Conventional Weights F1 Class & Coarser <sup>\$</sup>	1 mg 2 mg 5 mg 10 mg 20 mg 50 mg 100 mg 200 mg 500 mg 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g	0.003 mg 0.003 mg 0.004 mg 0.010 mg 0.010 mg 0.010 mg 0.010 mg 0.010 mg 0.010 mg 0.010 mg 0.010 mg 0.015 mg 0.04 mg 0.04 mg 0.04 mg 0.04 mg 0.10 mg	Using Standard weights of E1 Class (1mg to 200g) & weighing balance of Readability: 0.001 mg upto 6 g and 220 g d: 0.01/0.02/0.05 mg (as per OIML R-111:2004 by substitution method through ABBA cycles)
<b>2.</b>	Conventional Weights M2 Class & Coarser <sup>\$</sup>	500 g 1 kg 2 kg 5 kg 10 kg 20 kg 50 kg 100 kg	0.02 g 0.02g 0.02 g 0.02 g 0.2g 0.2g 1 g 2 g	Using Standard weights of F1 Class (500 g to 100 kg) & weighing balance of 5 kg Readability: 10 mg,30 kg Readability: 0.1 g,100 kg Readability: 1 g (as per OIML R 111: 2004 by substitution method through ABBA cycles)

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III.	<b>WEIGHING SCALE AND BALANCE</b>			
		1 mg to 60 g d $\geq$ 0.001 mg	0.009 mg	
		1 mg to 60 mg d $\geq$ 0.01 mg	0.07 mg	
		10 mg to 200 g d $\geq$ 0.02/0.05 mg	0.1 mg	
		500 mg to 5 kg d $\geq$ 0.01 g	0.07 g	
		5 g to 30 kg d $\geq$ 0.1 g	0.2 g	
		100 g to 100 kg d $\geq$ 1 g	2 g	
IV.	<b>VOLUME</b>			
		1 $\mu$ l to 10 $\mu$ l 10 $\mu$ l to 100 $\mu$ l	0.1 $\mu$ l 0.9 $\mu$ l	Using Weighing Balance of Readability: 0.001 mg & Distilled Water as per ISO 8655
		100 $\mu$ l to 1000 $\mu$ l 1 ml to 10 ml	1.4 $\mu$ l 9.4 $\mu$ l	Using Weighing Balance of Readability: 0.01 mg & Distilled Water as per ISO 8655

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<b>V.</b>	<b>PRESSURE INDICATING DEVICES</b>			
1.	Pressure – Pneumatic# (Analog / Digital, Industrial Pressure gauges, Transducers, Transmitters, Indicating Transmitters, Indicators, Controllers)	0 bar to 4 bar	0.0052 bar	Using Pneumatic Pressure Comparator & Digital Pressure Gauge Comparison Method as per DKD R-6-1
2.	Pressure- Hydraulic# (Analog / Digital, Industrial Pressure gauges, Transducers, Transmitters, Indicating Transmitters, Indicators, Controller)	0 bar to 70 bar 0 to 700 bar	0.10 bar 0.22 bar	Using Hydraulic Pressure Comparator & Digital Pressure Gauge Comparison Method as per DKD R-6-1
3.	Vacuum# (Analog / Digital, Industrial Vacuum gauges, Transducers, Transmitters, Indicating Transmitters, Indicators, Controllers)	0 to (-) 0.95 bar	0.0016 bar	Using Pneumatic Pressure Comparator & Digital Pressure Gauge Comparison Method as per DKD R-6-1

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4.	Differential Pressure Gauges # (Magnehelic / Differential pressure Indicators / Controllers / Transmitters)	$\pm$ 10000 Pa	1.8%rdg	Using low Pressure Pump & Digital Manometer Comparison Method as per DKD R-6-1
VI.	<b>ACCELERATION AND SPEED</b>			
1.	RPM meter/ Centrifuge (Non - Contact) *	60 rpm to 5000 rpm 5000 rpm to 25000 rpm	1.1 rpm to 8.1 rpm 8.1 rpm to 26.4 rpm	Using Direct Comparison with Digital Tachometer

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<b><u>THERMAL CALIBRATION</u></b>				
<b>I.</b>	<b>TEMPERATURE</b>			
1.	Liquid in Glass Thermometer, Dial Thermometer <sup>§</sup>	(-) 40 °C to 50°C 50 °C to 250°C	0.33°C 0.27 °C	Using PRT Sensor & Readout Thermometer High Precision Bath Liquid (Oil) Bath by Comparison Method
2.	RTD'S, Thermocouple, Digital Thermometer, Temperature Read Out Display with Sensor, Temp. Transmitter, Dial Thermometers, Temp. Data Logger with Sensor <sup>§</sup>	(-) 80 °C to 50°C >50 °C to 250°C	0.22°C 0.25°C	Using PRT Sensor & Readout Thermometer High Precision Bath Liquid (Oil) Bath by Comparison Method
3.	RTD'S, Thermocouple, Digital Thermometer, Temperature Read Out Display with Sensor, Temp. Transmitter, Dial Thermometers, Temp. Data Logger with Sensor <sup>#</sup>	>250 °C to 600 °C >600 °C to 1100 °C	0.85°C 2.0°C	Using PRT Sensor & Using "S" type Thermocouple Readout Thermometer Calibration Furnace by Comparison Method

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Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability ( $\pm$ )	Remarks
4.	Temperature Indicator with sensor of Dry Block, Liquid Bath, Oven, Deep Freezer, Refrigerator, Auto Clave, Muffle Furnace <sup>#</sup>	(-) 80 °C to 50 °C >50 °C to 250 °C >250 °C to 600 °C >600 °C to 1100 °C	0.22 °C 0.25 °C 0.85 °C 2.1 °C	Using PRT Sensor & Readout Thermometer (Single Position) Using "S" Type Thermocouple & Readout Thermometer (Single Position) by Comparison Method
5.	Humidity Indicator with Sensor, Hygrometer, Humidity Chamber(Single Position) <sup>#</sup>	10 % RH to 95 % RH @ 25 °C	2.00%RH @ 25 °C	Using Humidity Indicator with probe Humidity Chamber by Comparison Method
6.	RTD/ Thermocouple (with and without Temperature Read Out Display), Temp. Transmitter, Temp. Gauge, Thermocouple, (with and without Temperature Read Out Display) *	(-) 25 °C to 140 °C >140 °C to 250 °C	0.25 °C 0.25 °C	Using SPRT sensor & Readout Thermometer Dry Well Calibrator, Liquid (oil) Bath by Comparison Method
7.	Deep Freezer, Refrigerator, Incubator, BOD, Auto Clave, Oven, Water Bath, Liquid Bath , Environment Chamber*	(-) 40 °C to 250 °C >250 °C to 400 °C	1.5 °C 2.5 °C	Using Data Logger with T-Type Thermocouple, (By Multi Position Method)

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8.	Humidity Chamber, Environment Chamber*	10 % RH to 95 % RH @ 25°C	3.3%RH @ 25°C	Using Portable Humidity Data Logger with Minimum 9 Position (Multi Position Method)

\* Measurement Capability is expressed as an uncertainty ( $\pm$ ) at a confidence probability of 95%

§Only in Permanent Laboratory

\*Only for Site Calibration

# The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.