National Accreditation Board for Testing and Calibration Laboratories

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 1 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
LOCATION 1-207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA Permanent Facility					
1	THERMAL-SPECIFIC HEAT & HUMIDITY	Calibration of environment chambers	Using multiposition calibration using minimum 9 humidity dataloggers	20 %Rh to 95 Rh@25degc	1.3%RH
2	THERMAL-SPECIFIC HEAT & HUMIDITY	humidity indicator with sensor of climatic chamber	Using temperature humidity meter with single position calibration at measuring location in DUV	15 %RH to 95 %RH@25degC	0.7%
3	THERMAL-SPECIFIC HEAT & HUMIDITY	Temperature humidity meters	Using temperature humidity in environment chamber by comparison method	20 %RH to 95 %RH@approx 25degC	0.7%
4	THERMAL-SPECIFIC HEAT & HUMIDITY	Temperature Humidity meters	Fluke PRT with DMM and environmental chamber	-5 degC to 50 degC@50%RH	0.18degC
5	THERMAL-TEMPERATURE	Calibration of chambers, ovens and furnaces	Using minimum 9 sensors with multichannel datalogger at multiposition calibration	660 degC to 1200 degC	4.5degC
6	THERMAL-TEMPERATURE	Indicator with sensor of chamber, oven or furnace	Fluke PRT with 6&1/2 digit DMM with comparison method	-196 degC to 660 degC	0.13degC

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 2 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
7	THERMAL-TEMPERATURE	Indicator with sensor of chamber, oven or furnace	S type thermocouple with 6 &1/2 DMM	660 degC to 1200 degC	1.2degC
8	THERMAL-TEMPERATURE	Liquid in glass thermometer	Using PRT and 6&1/2 digit DMM in oil bath by comparison method	50 degC to 200 degC	0.2degC
9	THERMAL-TEMPERATURE	Liquid in glass thermometer	Using PRT and RTD(4W) with 6 &1/2 digit DMM by comparison method	-80 degC to 50 degC	0.2degC
10	THERMAL-TEMPERATURE	Non contact pyrometer, IR thermometer (Emissivity 0.98)	IR pyrometer by comparison method	50 degC to 400 degC	1.5degC
11	THERMAL-TEMPERATURE	Non contact pyrometer, IR thermometer (Emissivity 0.98)	Using IR pyrometer and blackbody by comparison method	400 degC to 1200 degC	3.3degC
12	THERMAL-TEMPERATURE	RTD with and without indicator,	PRT with 6&1/2 digit DMM using comparison method	-196 degC	0.07degC
13	THERMAL-TEMPERATURE	RTD/ Thermocouple with or without indicator	Using PRT with 6&1/2 digit DMM with comparison method	-30 degC to 400 degC	0.1degC
14	THERMAL-TEMPERATURE	RTD/Thermocouple with or without indicator	PRT with 6 &1/2 digit DMM in dry block by comparison method	400 degC to 660 degC	0.17degC

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	3 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
15	THERMAL-TEMPERATURE	RTD/Thermocouple with or without indicator, Temperature gauges	Using RTD (4W) and 6&1/2 digit dmm using comparison method	-80 degC to -30 degC	0.09degC
16	THERMAL-TEMPERATURE	Temperature indicator with sensor of liquid bath. Ovens. Furnaces and temperature calibrators	Thermocouple (S type)with 6&1/2 digit dmm at single position	660 degC to 1200 degC	1.16degC
17	THERMAL-TEMPERATURE	Temperature indicator with sensor of liquid bath. Ovens. Furnaces and temperature calibrators	RTD (4W) or PRT with 6&1/2 digit dmm at single point	-196 degC to 660 degC	0.2degC
18	THERMAL-TEMPERATURE	Thermocouple with/without indicator	Thermocouple S type with 6&1/2 dmm in dry block by comparison method	660 degC to 1200 degC	1.1degC

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 4 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
LOCATION 1-207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA Site Facility					
1	THERMAL-SPECIFIC HEAT & HUMIDITY	Calibration of environment chambers	Using multiposition calibration using minimum 9 humidity dataloggers	20 %Rh to 95 Rh@25degc	1.3%RH
2	THERMAL-SPECIFIC HEAT & HUMIDITY	humidity indicator with sensor of climatic chamber	Using temperature humidity meter with single position calibration at measuring location in DUV	15 %RH to 95 %RH@25degC	0.7%
3	THERMAL-TEMPERATURE	Calibration of chambers, ovens and furnaces	Using minimum 9 sensors with multichannel datalogger at multiposition calibration	660 degC to 1200 degC	4.5degC
4	THERMAL-TEMPERATURE	Calibration of chambers, ovens and furnaces	Using 9 sensors with multichannel datalogger at multiposition calibration	-75 degC to 660 degC	1.5degC
5	THERMAL-TEMPERATURE	Indicator with sensor of chamber, oven or furnace	Fluke PRT with 6&1/2 digit DMM with comparison method	-196 degC to 660 degC	0.13degC
6	THERMAL-TEMPERATURE	Indicator with sensor of chamber, oven or furnace	S type thermocouple with 6 &1/2 DMM	660 degC to 1200 degC	1.2degC

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	5 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
7	THERMAL-TEMPERATURE	Liquid in glass thermometer	Using PRT and 6&1/2 digit DMM in oil bath by comparison method	50 degC to 200 degC	0.2degC
8	THERMAL-TEMPERATURE	Non contact pyrometer, IR thermometer (Emissivity 0.98)	IR pyrometer by comparison method	50 degC to 400 degC	1.5degC
9	THERMAL-TEMPERATURE	Non contact pyrometer, IR thermometer (Emissivity 0.98)	Using IR pyrometer and blackbody by comparison method	400 degC to 1200 degC	3.3degC
10	THERMAL-TEMPERATURE	RTD/ Thermocouple with or without indicator	Using PRT with 6&1/2 digit DMM with comparison method	-30 degC to 400 degC	0.1degC
11	THERMAL-TEMPERATURE	RTD/Thermocouple with or without indicator	PRT with 6 &1/2 digit DMM in dry block by comparison method	400 degC to 660 degC	0.17degC
12	THERMAL-TEMPERATURE	RTD/Thermocouple with or without indicator, Temperature gauges	Using RTD (4W) and 6&1/2 digit dmm using comparison method	-80 degC to -30 degC	0.09degC
13	THERMAL-TEMPERATURE	Temperature indicator with sensor of liquid bath. Ovens. Furnaces and temperature calibrators	Thermocouple (S type)with 6&1/2 digit dmm at single position	660 degC to 1200 degC	1.16degC

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	6 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
14	THERMAL-TEMPERATURE	Temperature indicator with sensor of liquid bath. Ovens. Furnaces and temperature calibrators	RTD (4W) or PRT with 6&1/2 digit dmm at single point	-196 degC to 660 degC	0.2degC
15	THERMAL-TEMPERATURE	Thermocouple with/without indicator	Thermocouple S type with 6&1/2 dmm in dry block by comparison method	660 degC to 1200 degC	1.1degC

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	7 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
LOCATION 2 - 238,225 KOHINOOR MAJESTIC, CHINCHWAD, PUNE, MAHARASHTRA, INDIA Permanent Facility					
1	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC current	Using 8 & 1/2 digit DMM (Transmille 8081)by direct and comparison direct and comparison measurement	100 mA ac@ 10kHz to 1 Aac@10kHz	0.15 % to 0.6 %
2	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC current	Using 8&1/2 digit DMM (Transmille 8081)by direct and comparison measurement	100 uA@40Hz to 1kHz to 20 A@40Hz to 10kHz	0.08 % to 0.16 %
3	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC current	Using 6&1/2 digit dmm and shunt by direvt measurement method	20 Aac@50Hz to 2000 Aac@50Hz	0.2 % to 1.25 %
4	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC current	Using 8&1/2 dmm(Transmille 8081) by direct measurement and comparison method	30 uA@1kHz to 100 uA@1kHz	0.15 % to 0.15 %

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	8 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
5	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC Power	Using power analyzer by direct and comparison method	0.01(30, 3.3, 0.1) W(V,I, pF) to 6(300,20,1) kW, (V,A)	1 % to 0.34%
6	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC Power /Energy	Using power analyser by direct and comparison method	0.01(30,3.3,0.1) W(V,mA,PF) to 6(300,20,1) kW(V, A,PF)	1% % to 0.35 %
7	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC resistance	Using LCR meter by comparison method	2 ohm@1kHz to 200 Mohm@1kHz	1.2 % to 0.5 %
8	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC voltage	Using 8 &1/2 digit DMM (Transmille 8081)by direct measure and comparison method	10 mV@50Hz to 20kHz to 100 V@50Hz to 20kHz	0.16 % to 0.18 %
9	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC voltage	Using 81/2 digit DMM 8081 by Direct and comparison	10 mV@50kHz to 10 V@50kHz	1.3 % to 0.18 %

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	9 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
10	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC voltage	Using 8 &1/2 digit DMM (Transmille 8081) by direct and comparison measurement	100 mVac@10Hz to 1 Vac@10Hz	0.15 % to 0.07 %
11	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC voltage	Using 81/2 digit DMM 8081 by Direct and comparison	100 V@50Hz to 10kHz to 1000 V@50Hz to 10kHz	0.08 % to 0.08 %
12	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Capacitance	Using LCR meter by direct and comparison method	1 uF@1kHz to 1 mF@1kHz	0.4 % to 1.3 %
13	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Capacitance	Using Agilent(LCR meter)by direct and comparison method	100 pF@1kHz to 1 uF@1kHz	0.6 % to 0.4 %
14	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	HV source	Using HV probe and 5&4/5 DMM by direct method	2 kV@50Hz to 10 kV@50Hz	1.3 % to 1.3 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 10 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
15	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Inductance	Using Agilent LCR meter(U1732C)by direct and comparison method	100 uH@1kHz to 10 H@1kHz	1.3 % to 0.6 %
16	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Power Factor	Using Power analyzer by direct measurement	-1 PF to +1 PF	0.02%
17	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC current	Using Fluke 5522A MFC and coil by direct method	20 A@50Hz to 1000 A@50Hz	0.2 % to 0.5 %
18	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC current	Using Fluke 5522A MFC by direct method	30 uA@ 50Hz to 1kHz to 300 mA@50Hz to 1kHz	0.69 % to 0.066 %
19	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC current	Using Fluke 5522A MFC by direct method	300 mA@50Hz to 1kHz to 20 A@50Hz to 1kHz	0.066 % to 0.2 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 11 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
20	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC High voltage	AC HV source	1 kV@50Hz to 10 kV@50Hz	1.6 % to 1.6 %
21	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC Power	Using Fluke 5522A MFC by direct method	30 3.3 0.1 (V,mA,PF) to 300 20.5 1 (V A PF)	0.6 % to 0.21 %
22	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC voltage	Using Fluke 5522A MFC by direct method	1 mV@50Hz to 10kHz to 300 V@50Hz to 10kHz	0.72 % to 0.03 %
23	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC voltage	Using Fluke 5522A MFC by direct method	300 V@50Hz to 10kHz to 1000 V@50Hz to 10kHz	0.03 % to 0.04 %
24	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	Capacitance	Decade capacitance box	20 pF@1kHz to 10 uF@1kHz	1.4 % to 1.4 %
25	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	Inductance	Using grade A decade inductance box by direct method	100 uH@1kHz to 10 H@1kHz	1.3 % to 0.6 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 12 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
26	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	Power factor	Using Fluke 5522A MFC by direct method	0.1 PF to 1 PF	0.003PF
27	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC current	Using 8&1/2 digit DMM (Transmille 8081)by direct and comparison measurement	1 A to 20 A	0.07 % to 0.1 %
28	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC current	Using 8&1/2 digit DMM (Transmille 8081)by direct measurement	10 nA to 10 uA	1.6 % to 0.009 %
29	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC current	Using 8&1/2 digit DMM (Transmille 8081)by direct and comparison measurement	10 uA to 1 A	0.009 % to 0.07 %
30	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC High voltage	Using HV probe and 5&4/5 DMM	2 kV to 40 kV	2.6 % to 2.6 %
31	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Power (10 W to 12 kW)	Using power analyzer by direct measurement	10 (10V,1A) Watt to 12 (600V,20A) kW	0.4 % to 0.4 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 13 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
32	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	Using 8&1/2 Digit DMM by direct measure	1 mOhm to 1 Ohm	0.7 % to 0.1 %
33	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	Using 8&1/2 digit DMM(TRANSMILLE 8081) by direct and comparison method	1 Ohm to 100 kohm	0.1 % to 0.003 %
34	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	Using 8 &1/2 digit DMM by measure and comparison method	100 Gohm to 1 Tohm	1.9 % to 0.75 %
35	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	Using 8&1/2 digit DMM(Transmille 8081) by direct and comparison method	100 kohm to 100 Mohm	0.003 % to 0.003 %
36	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	Using 8&1/2 digit DMM by direct and comparison measurement	100 Mohm to 100 Gohm	0.0033 % to 1.03 %
37	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	Using 8&1/2 digit DMM in direct mode	30 uOhm to 1 mOhm	1.5 % to 0.7 %

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	14 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
38	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC voltage	Using 8&1/2 digit DMM (Transmille 8081)by direct measurement	100 mV to 1000 V	0.002 % to 0.001 %
39	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC voltage	Using 8&1/2 digit DMM (Transmille 8081)by direct measurement	100 uV to 100 mV	0.5 % to 0.002 %
40	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using fluke 5522A MFC by direct method	1 A to 20 A	0.05 % to 0.12 %
41	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using fluke 5522A MFC by direct method	1 uA to 100 uA	2.3 % to 0.04 %
42	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using fluke 5522A MFC by direct method	10 mA to 1 A	0.015 % to 0.05 %
43	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using fluke 5522A MFC by direct method	100 uA to 10 mA	0.04 % to 0.015 %

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	15 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
44	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using FLuke 5522A calibrator with current coil, direct source	20 A to 1000 A	0.12 % to 0.32 %
45	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Power (10 W to 12.3 kW)	Using fluke 5522A MFC by direct method	10 (10,1) W (V, I) to 12.3 (600 ,20.5) kW (V, I)	0.06 % to 0.13 %
46	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using MFC Fluke5522A by direct source	1 MOhm to 1000 MOhm	0.004 % to 1.75 %
47	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fixed resistances	1 mohm	0.45%
48	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using precision decade box by direct method	10 mohm to 1 Ohm	2.39 % to 0.57 %
49	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using high resistance decade box by direct source	100 MOhm to 100 GOhm	2.4 % to 2.4 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 16 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
50	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fluke 5522A MFC by direct method	100m ohm to 300 Ohm	1.4 % to 0.004 %
51	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fixed resistances	250 uohm	2.8%
52	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fluke 5522A MFC by direct method	3 kohm to 1 Mohm	0.01 % to 0.005 %
53	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fluke 5522A MFC by direct method	300 Ohm to 3 kohm	0.004 % to 0.01 %
54	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fixed resistance	35 uohm	1.16%
55	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fixed resistances	75 microOhm	1.14%

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	17 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
56	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC voltage	Using Fluke 5522A MFC by direct method	1 V to 1000 V	0.12 % to 0.003 %
57	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC voltage	Using Fluke 5522A MFC by direct method	100 uV to 1 V	1.15 % to 0.12 %
58	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CT Ratio	Using standard CT and 6&1/2 digit DMM	20 A to 1000 A	0.35 % to 0.35 %
59	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Electrical fast transient test systems (Amplitude)	Using Osciloscope by Direct measurement	250 V to 4 kV	8.67 % to 8.67 %
60	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Electrical fast transient test systems (Pulse width)	Using Osciloscope by Direct Measurement	50 ns to 50 ns	4.2 % to 4.2 %
61	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Electrical fast transient test systems (Rise Time)	Using Osciloscope by Direct Measurement	5 ns to 5 ns	6.45 % to 6.45 %

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	18 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
62	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Shunt	Fluke calibrator 5522A and 8 &1/2 digit DMM by direct measurement	20 A to 1000 A	1.6 % to 1.6 %
63	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope	Using Fluke 5522A MFC by direct method and RF generator	2 mV to 50 V	0.36 % to 0.003 %
64	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope (bandwidth)	Using fluke 5522A MFC by direct method and rf generator	Upto to 1 GHz	0.01%
65	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope (timebase)	Using Fluke 5522A MFC by direct method and RF generator	2 ns to 1 s	0.4%
66	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temperature simulator(E type)	Using 8&1/2 digit DMM(Transmille 8081) by direct measurement	0 degC to 800 degC	1.2degC
67	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temperature simulator(J type)	Using 8&1/2 digit DMM(Transmille 8081) by direct measurement	-180 degC to 750 degC	0.5degC

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 19 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
68	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temperature simulator(K type)	Using 8&1/2 digit DMM(Transmille 8081) by direct measurement	-140 degC to 1340 degC	0.6degC
69	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temperature simulator(N type)	Using 8&1/2 digit DMM(Transmille 8081) by direct measurement	-200 degC to 1300 degC	0.8degC
70	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temperature simulator(R type)	Using 8&1/2 digit DMM(Transmille 8081) by direct measurement	50 degC to 1700 degC	1.2degC
71	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temperature simulator(RTD type)	Using 8&1/2 digit DMM (Transmille 8081) by direct measurement	-100 degC to 400 degC	0.09degC
72	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temperature simulator(S type)	Using 8&1/2 digit DMM(Transmille 8081) by direct measurement	50 degC to 1700 degC	1.2degC
73	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temperature simulator(T type)	Using 8&1/2 digit DMM(Transmille 8081) by direct measurement	0 degC to 400 degC	0.5degC

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	20 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
74	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature by simulation method of RTD	Using Fluke 5522A MFC by direct method	-250 degC to 800 degC	0.26degC
75	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature by simulation method of thermocouple (K & J)	Using Fluke 5522A MFC by direct method	-200 degC to 1200 degC	0.3degC
76	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature by simulation method of thermocouple (R & S)	Using Fluke 5522A MFC by direct method	0 degC to 1750 degC	0.7degC
77	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature by simulation method of thermocouple (T)	Using Fluke 5522A MFC by direct method	-250 degC to 400 degC	0.7degC
78	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple (E type)	Using temperature calibrator by Direct source	0 degC to 800 degC	0.4degC
79	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple (N type)	Using temperature calibrator by Direct Source	0 degC to 1000 degC	0.4 degC

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	21 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
80	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Frequency and period	By using high resolution counter (HTC FC3165) by direct and comparison measurement	1 Hz,sec to 2.4 GHz, ns	0.08 % to 0.001 %
81	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Using time interval meter by using comparison method	Using time interval meter by using comparison method	6 s to 9999 s	0.07 s to 6.3 s
82	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency and period	Using RF generator by direct method	100 kHz to 1 GHz	0.01 % to 0.11 %
83	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency and period	Using fluke 5522A MFC by direct method	50 mHz to 2 MHz	0.11 % to 0.0032 %
84	MECHANICAL-ACCELERATION AND SPEED	Speed measurement in rpm-contact type	Procedure based on SANAS guideline TR45-01 / Using tachometer -contact type. Tachometer Calibrator of INDEECON make and calibrated Tachometer	10 rpm to 10000 rpm	1 rpm to 4 rpm

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 22 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
85	MECHANICAL-ACCELERATION AND SPEED	Speed measurement in rpm-non contact type	Using tachometer-non contact. Tachometer Calibrator of INDEECON make and calibrated Tachometer	10 rpm to 99,000 rpm	1 rpm to 12 rpm
86	MECHANICAL-ACCELERATION AND SPEED	Tachometer-contact	Using tachometer contact type. Tachometer Calibrator of INDEECON make and calibrated Tachometer	10 rpm to 10000 rpm	7 rpm to 10 rpm
87	MECHANICAL-ACCELERATION AND SPEED	Tachometer-non contact	Procedure based on SANAS guideline TR45-01 / Using tachometer -contact type. Tachometer Calibrator of INDEECON make and calibrated Tachometer	10 rpm to 99,999 rpm	4 rpm to 14 rpm
88	MECHANICAL-ACOUSTICS	Sound level meter	Using sound calibrator	94 & 114 db @ 1kHz	0.7dB
89	MECHANICAL-DENSITY AND VISCOSITY	Density of liquids	Based on IS 4730 and OIML G14 / E1 class Weights and weighing balance of readability 0.01mg	0.6 g/ml to 1.5 g/ml	0.002g/ml

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	23 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
90	MECHANICAL-DENSITY AND VISCOSITY	Density of solids	Hydrostatic weighing method and OIML G14 / E1 class weights and weighing balance of 0.1mg readability	1 g/ml to 8 g/ml	0.02g/ml
91	MECHANICAL-DENSITY AND VISCOSITY	Density or specific gravity hydrometer	Based on hydrostatic weighing and OIMLG14 / Weighing balance of 1mg readability with underside weighing arrangement and distilled water	0.6 g/ml to 2 g/ml	0.003g/ml
92	MECHANICAL-DENSITY AND VISCOSITY	Flow cup : Ford cup B1 to B6 type / Zahn cup	Procedure based on ASTMD1200 and IS3944 / Calibrated Newtonian liquids and timing device	10 mm2/s to 1000 mm2/s	0.42%
93	MECHANICAL-DENSITY AND VISCOSITY	Viscometer constant of glass capillary viscometer	Procedure based on ASTM D446 / ISO 3104 / Using Newtonian liquids of known kinematic viscosity, temperature controlled bath and timing device	0.002 cst/s to 2.5 cst/s	0.31%

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 24 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
94	MECHANICAL-DENSITY AND VISCOSITY	Viscosity of unknown oils	ASTM D446 / ISO3104 / using calibrated glass capillary viscometer, thermo controlled bath and timing device	0.4 cst to 2500 cst	0.3%
95	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bevel Protractor LC 5 minute arc	Using angle gauge set by comparison method	0 deg to 360 deg	5'arc
96	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Bore Gauge (For transmission mechanism upto 1mm) LC 0.2/1 µm	Using dial calibration tester by comparison method	Upto to 1 mm	3.8µm
97	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Calipers all type LC:0.01mm	Using Caliper checker by comparison method	0 to 600 mm	11.25µm
98	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Combination square	Using angle gauge set by comparison method	0 deg to 360 deg	34'arc

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 25 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
99	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Micrometer Gauges LC :0.001mm	Using Depth checker and slip gauge set by comparison method	0 to 300 mm	9.2µm
100	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Depth Vernier Caliper, LC 0.01mm	Using depth checker and slip gauge set by comparison flask	0 to 300mm	11µm
101	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Gauge-Plunger dial LC 0.001mm	Using dial calibration tester by comparison method	0 to 25 mm	3.8µm
102	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Dial Gauge-Plunger dial LC 0.01mm	Using dial calibration tester by comparison method	0 to 25 mm	4.8µm
103	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	External micrometer LC 0.001mm	Using Mic check set and slip gauge set by comparison method	0 to 100 mm	1.25µm

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 26 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
104	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Feeler Gauge / Foils	Using dial gauge with comparator by comparison method	0.1 mm to 1 mm	3 µm
105	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Height gauge all type LC: 0.01mm	Using caliper checker by comparison method	0 to 600 mm	11.25µm
106	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Lever Dial gauge LC 0.001mm	Using dial calibration tester by comparison method	0 to 0.14 mm	3.8 µm
107	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Lever Dial gauge LC 0.01mm	Using dial calibration tester by comparison method	0 to 1 mm	6.9 µm
108	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Measuring Pins	Using dial gauge with comparator by comparison method	1 mm to 20 mm	4.2 µm

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 27 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
109	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Measuring scale/tape	Using tape and scale calibrator by comparison method	1 mm to 1000 mm	205 µm
110	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Measuring tape,LC1mm	Using tape and scale calibrator by comparison method	1 mm to 15 m	205sqrt(L/1000) µm Where L in mm
111	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Micrometer setting rods	Using dial gauge with comparator by comparison method	25 mm to 275 mm	8.2 µm
112	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Plain plug gauge	Using dial gauge with comparator by comparison method	1 mm to 200 mm	4.2µm
113	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Snap Gauge	Using slip gauge set by comparison method	3 mm to 100 mm	4µm

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 28 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
114	MECHANICAL-DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)	Tape and scale machine LC :0.001mm	Using slip gauge set	Upto to 100 mm	82µm
115	MECHANICAL-MOBILE FORCE MEASURING SYSTEM	Force push pull gauge(Push and pull mode)	Procedure based on VDI/VDE2624 / Using slotted newton weights (0 to 500) N with different loading frames	1 N to 500 N	0.11%
116	MECHANICAL-MOBILE FORCE MEASURING SYSTEM	Force push pull gauge(Push and pull mode)	Procedure based on VDI/VDE2624 / Using slotted newton weights (0 to 1000) N with different loading frames	100 N to 1000 N	0.56%
117	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic pressure indicator instrument and gauges	Using digital pressure indicator with uncertainty of 0.05bar	0 to 400 bar	0.1bar
118	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic pressure indicator instrument and gauges	Using digital pressure indicator with uncertainty of 0.07bar	0 to 700 bar	0.2bar
119	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic absolute pressure indicating gauges-barometer	Using digital barometer by comparison method	300 mbar to 1000 mbar	0.5mbar

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 29 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
120	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic pressure indicator instrument and gauges	Using digital pressure indicator with uncertainty of 0.5mbar	0 to 2 bar	1mbar
121	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic pressure indicator instrument and gauges	Using digital pressure indicator with uncertainty of 4mbar	0 to 35 bar	4mbar
122	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic pressure indicator instrument and gauges	Using digital pressure indicator with uncertainty of 0.3mbar	-0.95 bar to 0 bar	1mbar
123	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic pressure indicator instrument and gauges	Using digital pressure indicator with uncertainty of 0.06mbar	-200 mbar to 200 mbar	0.2mbar
124	MECHANICAL-TORQUE GENERATING DEVICES	Torque generating device of type I and type II	Using torque transducers with display unit As per IS 16486-2018	0.2 Nm to 2 Nm	0.30%of rdg
125	MECHANICAL-TORQUE GENERATING DEVICES	Torque generating device of type I and type II	using torque transducer with display unit As per IS 16486-2018	50 Nm to 500 Nm	0.67% of rdg
126	MECHANICAL-TORQUE GENERATING DEVICES	Torque generating devices of type I and type II	using torque transducer with display unit As per IS 16486-2018	10 Nm to 100 Nm	0.30% of rdg

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 30 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
127	MECHANICAL-TORQUE GENERATING DEVICES	Torque generating devices of type I and type II	using torque transducer with display unit As per IS 16486-2018	2 Nm to 20 Nm	0.3%
128	MECHANICAL-VOLUME	Glassware like pipette, burette, measuring cylinders, flasks, beakers, can etc	Gravimetric method based on IS/ISO4787 / E1 and F1 class weights and weighing balance of 0.01mg readability	0.1 ml to 10 ml	12 µl
129	MECHANICAL-VOLUME	Glassware like pipette, burette, measuring cylinders, flasks, beakers, can etc	Gravimetric method based on IS/ISO4787 / E1 and F1 class weights and weighing balance of 0.01mg readability	10 ml to 100 ml	100 µl
130	MECHANICAL-VOLUME	Glassware like pipette, burette, measuring cylinders, flasks, beakers, can etc	Gravimetric method based on IS/ISO4787 / E1 and F1 class weights and weighing balance of 10mg readability	500 ml to 5000 ml	3.5ml
131	MECHANICAL-VOLUME	Glassware like pipette, burette,cylinders, flask, beaker,can etc	Gravimetric method based on IS/ISO4787 / E1 and F1 class weights and weighing balance of 1mg readability	100 ml to 500 ml	50 µl

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	31 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
132	MECHANICAL-VOLUME	Micropipette or Piston Pipette	Gravimetric method based on ISO8655,part6 / E1 class weights and weighing balance of 0.01mg readability	>10 µl to 100 µl	0.3µl
133	MECHANICAL-VOLUME	Micropipette or piston pipette	Gravimetric method based on ISO8655,part6 / E1 class weights and weighing balance of 0.01mg readability	1 ml to 5 ml	1.1µl
134	MECHANICAL-VOLUME	Micropipette or piston pipette	Gravimetric method based on ISO8655,part6 / E1 class weights and weighing balance of 0.01mg readability	100 µl to 1000 µl	2.47µl
135	MECHANICAL-VOLUME	Micropipette or piston pipette	Gravimetric method based on ISO8655,part6 / E1 class weights and weighing balance of 0.01mg readability	5 ml to 10 ml	3µl
136	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance , Class I, d=0.1mg	Using E1 class weights as per OIML R76	10 mg to 200 g	0.12mg

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	32 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
137	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance , Class II, d=100mg	Using E1 and F1 class weights as per OIML R76	2 g to 20 Kg	100mg
138	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance , Class II, d=1mg	Using E1 class weights as per OIML R76	20 mg to 1000 g	2mg
139	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance , Class III, d=0.5g	Using F1 and M1 class weights as per OIML R76	1 g to 50 kg	400mg
140	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance ,Class III, d=1g	Using F1 and M1 class weights as per OIML R76	20 g to 100 kg	2g
141	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance, Class I, d=0.001mg	E1 class weight based on OIML R76	1 mg to 3 g	0.007mg
142	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance, Class I, d=0.01mg	Using E1 class weights as per OIML R76	1 mg to 200 g	0.03mg
143	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance, Class II, d=10mg	Using E1and F1 class weights as per OIML R76	200 mg to 10 kg	10mg

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 33 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
144	MECHANICAL-WEIGHTS	E1 class Weights	E1 class weight / substitution method and direct comparison method	1 mg	0.001mg
145	MECHANICAL-WEIGHTS	E1 class Weights	E1 class weight / Using substitution method and direct comparison method	2 mg	0.001mg
146	MECHANICAL-WEIGHTS	F1 class weight	E1 class weight / Direct comparison using ABBA method	1 kg	0.8mg
147	MECHANICAL-WEIGHTS	F1 class weight	E1 class weight / Direct comparison using ABBA method	500 g	1mg
148	MECHANICAL-WEIGHTS	F2 class weight	F1 Class weight / Direct comparison using ABBA method	10 kg	20mg
149	MECHANICAL-WEIGHTS	F2 class weight	E1 class weights / Direct comparison using ABBA method	2 kg	8.0mg
150	MECHANICAL-WEIGHTS	F2 class weight	F1 class weight / Direct comparison using ABBA method	20 kg	0.7g
151	MECHANICAL-WEIGHTS	F2 class weight	F1 class weight / Direct comparison using ABBA method	5 kg	10.0mg
152	MECHANICAL-WEIGHTS	M2 class weight	M1 class weight / Direct comparison using ABBA method	50 kg	1.0g

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 34 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
153	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using substitution method and direct comparison method	1 g	0.003mg
154	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using substitution method and direct comparison method	10 g	0.006mg
155	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using substitution method and direct comparison method	10 mg	0.001mg
156	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using direct comparison method	100 g	0.02mg
157	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using substitution method and direct comparison method	100 mg	0.001mg
158	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using substitution method and direct comparison method	2 g	0.004mg
159	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using substitution method and direct comparison method	20 g	0.01mg

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 35 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
160	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weight / Using substitution method and direct comparison method	20 mg	0.001mg
161	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using direct comparison method	200 g	0.04mg
162	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using substitution method and direct comparison method	200 mg	0.002mg
163	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using substitution method and direct comparison method	5 g	0.006mg
164	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weight / Using substitution method and direct comparison method	5 mg	0.001mg
165	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using substitution method and direct comparison method	50 g	0.01mg
166	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weight / Using substitution method and direct comparison method	50 mg	0.001mg

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	36 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
167	MECHANICAL-WEIGHTS	Weights (E1 class weight)	E1 class weights / Using substitution method and direct comparison method	500 mg	0.002mg

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	37 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
LOCATION 2 - 238,225 KOHINOOR MAJESTIC, CHINCHWAD, PUNE, MAHARASHTRA, INDIA Site Facility					
1	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC current	Using 6&1/2 digit DMM by direct measurement	100 mA@50Hz to 2 A@50Hz	0.18 % to 0.24 %
2	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC current	Using 6&1/2 digit DMM by direct measurement	100 uA@50Hz to 1kHz to 100 mA@50Hz to 1KHz	0.4 % to 0.16 %
3	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC Power	Using power analyzer by direct and comparison method	0.01(30, 3.3, 0.1) W(V,I, pF) to 6(300,20,1) kW, (V,A)	1 % to 0.34%
4	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC Power /Energy	Using power analyser by direct and comparison method	0.01(30,3.3,0.1) W(V,mA,PF) to 6(300,20,1) kW(V, A,PF)	1% % to 0.35 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 38 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
5	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC resistance	Using LCR meter by comparison method	2 ohm@1kHz to 200 Mohm@1kHz	1.2 % to 0.5 %
6	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC voltage	Using 6&1/2 digit DMM by direct measurement	1 mV@50Hz to 1kHz to 100 mV@50Hz to 1kHz	0.7 % to 0.12 %
7	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC voltage	Using 61/2 digit DMM by Direct method	100 mV@10kHz to 100 V@10kHz	0.12 % to 0.12 %
8	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	AC voltage	Using 6&1/2 DMM by direct measurement	100 mV@50Hz to 1kHz to 750 V@50Hz to 1kHz	0.12 % to 0.12 %
9	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Capacitance	Using LCR meter by direct and comparison method	1 uF@1kHz to 1 mF@1kHz	0.4 % to 1.3 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 39 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
10	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Capacitance	Using Agilent(LCR meter)by direct and comparison method	100 pF@1kHz to 1 uF@1kHz	0.6 % to 0.4 %
11	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	HV source	Using HV probe and 5&4/5 DMM by direct method	2 kV@50Hz to 10 kV@50Hz	1.3 % to 1.3 %
12	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Inductance	Using Agilent LCR meter(U1732C)by direct and comparison method	100 uH@1kHz to 10 H@1kHz	1.3 % to 0.6 %
13	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Measure)	Power Factor	Using Power analyzer by direct measurement	-1 PF to +1 PF	0.02%
14	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC current	Using Fluke 5522A MFC and coil by direct method	20 A@50Hz to 1000 A@50Hz	0.2 % to 0.5 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 40 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
15	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC current	Using Fluke 5522A MFC by direct method	30 uA@ 50Hz to 1kHz to 300 mA@50Hz to 1kHz	0.69 % to 0.066 %
16	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC current	Using Fluke 5522A MFC by direct method	300 mA@50Hz to 1kHz to 20 A@50Hz to 1kHz	0.066 % to 0.2 %
17	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC High voltage	AC HV source	1 kV@50Hz to 10 kV@50Hz	1.6 % to 1.6 %
18	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC Power	Using Fluke 5522A MFC by direct method	30 3.3 0.1 (V,mA,PF) to 300 20.5 1 (V A PF)	0.6 % to 0.21 %
19	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC voltage	Using Fluke 5522A MFC by direct method	1 mV@50Hz to 10kHz to 300 V@50Hz to 10kHz	0.72 % to 0.03 %
20	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	AC voltage	Using Fluke 5522A MFC by direct method	300 V@50Hz to 10kHz to 1000 V@50Hz to 10kHz	0.03 % to 0.04 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 41 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
21	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	Capacitance	Decade capacitance box	20 pF@1kHz to 10 uF@1kHz	1.4 % to 1.4 %
22	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	Inductance	Using grade A decade inductance box by direct method	100 uH@1kHz to 10 H@1kHz	1.3 % to 0.6 %
23	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source)	Power factor	Using Fluke 5522A MFC by direct method	0.1 PF to 1 PF	0.003PF
24	ELECTRO-TECHNICAL-ALTERNATING CURRENT (< 1 GHZ) (Source,Measure)	AC current	Using 6&1/2 digit DMM and shunt by direct measurement	2 A@50Hz to 20 A@50Hz	0.31 % to 0.42 %
25	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC current	Using 6&1/2 digit DMM by direct measurement	10 uA to 100 mA	2.3 % to 0.12 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 42 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
26	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC current	Using 6&1/2 digit DMM by direct measurement	100 mA to 2 A	0.07 % to 0.21 %
27	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC current	Using 6&1/2 digit DMM & shunt by direct measurement	2 A to 20 A	0.15 % to 0.7 %
28	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC current	Using 6 &1/2digit DMM and shunt by direct measurement	20 A to 1000 A	0.7 % to 0.93 %
29	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC High voltage	Using HV probe and 5&4/5 DMM	2 kV to 40 kV	2.6 % to 2.6 %
30	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Power (10 W to 12 kW)	Using power analyzer by direct measurement	10 (10V,1A) Watt to 12 (600V,20A) kW	0.4 % to 0.4 %
31	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	Using 6&1/2 digit DMM by direct measurement	1 Kohm to 1000 Mohm	0.06 % to 9.3 %

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	43 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
32	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC Resistance	Using 6&1/2 digit DMM by direct measurement	1 ohm to 1 Kohm	1.4 % to 0.06 %
33	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	Using 8 &1/2 digit DMM by measure and comparison method	100 Gohm to 1 Tohm	1.9 % to 0.75 %
34	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC resistance	Using 8&1/2 digit DMM by direct and comparison measurement	100 Mohm to 100 Gohm	0.0033 % to 1.03 %
35	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC voltage	Using 61/2 digit DMM by Direct method	100 mV to 1000 V	0.12 % to 0.01 %
36	ELECTRO-TECHNICAL-DIRECT CURRENT (Measure)	DC voltage	Using 6&1/2 digit DMM by direct measurement	100 uV to 100 mV	4 % to 0.12 %
37	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using fluke 5522A MFC by direct method	1 A to 20 A	0.05 % to 0.12 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 44 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
38	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using fluke 5522A MFC by direct method	1 uA to 100 uA	2.3 % to 0.04 %
39	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using fluke 5522A MFC by direct method	10 mA to 1 A	0.015 % to 0.05 %
40	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC current	Using fluke 5522A MFC by direct method	100 uA to 10 mA	0.04 % to 0.015 %
41	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Current	Using FLuke 5522A calibrator with current coil, direct source	20 A to 1000 A	0.12 % to 0.32 %
42	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Power (10 W to 12.3 kW)	Using fluke 5522A MFC by direct method	10 (10,1) W (V, I) to 12.3 (600 ,20.5) kW (V, I)	0.06 % to 0.13 %
43	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC Resistance	Using MFC Fluke5522A by direct source	1 MOhm to 1000 MOhm	0.004 % to 1.75 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 45 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
44	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fixed resistances	1 mohm	0.45%
45	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using precision decade box by direct method	10 mohm to 1 Ohm	2.39 % to 0.57 %
46	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using high resistance decade box by direct source	100 MOhm to 100 GOhm	2.4 % to 2.4 %
47	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fluke 5522A MFC by direct method	100m ohm to 300 Ohm	1.4 % to 0.004 %
48	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fixed resistances	250 uohm	2.8%
49	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fluke 5522A MFC by direct method	3 kohm to 1 Mohm	0.01 % to 0.005 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 46 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
50	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fluke 5522A MFC by direct method	300 Ohm to 3 kohm	0.004 % to 0.01 %
51	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC resistance	Using fixed resistances	75 microOhm	1.14%
52	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC voltage	Using Fluke 5522A MFC by direct method	1 V to 1000 V	0.12 % to 0.003 %
53	ELECTRO-TECHNICAL-DIRECT CURRENT (Source)	DC voltage	Using Fluke 5522A MFC by direct method	100 uV to 1 V	1.15 % to 0.12 %
54	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	CT Ratio	Using standard CT and 6&1/2 digit DMM	20 A to 1000 A	0.35 % to 0.35 %
55	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Electrical fast transient test systems (Amplitude)	Using Osciloscope by Direct measurement	250 V to 4 kV	8.67 % to 8.67 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 47 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
56	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Electrical fast transient test systems (Pulse width)	Using Osciloscope by Direct Measurement	50 ns to 50 ns	4.2 % to 4.2 %
57	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Measure)	Electrical fast transient test systems (Rise Time)	Using Osciloscope by Direct Measurement	5 ns to 5 ns	6.45 % to 6.45 %
58	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope	Using Fluke 5522A MFC by direct method and RF generator	2 mV to 50 V	0.36 % to 0.003 %
59	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope (bandwidth)	Using fluke 5522A MFC by direct method and rf generator	Upto to 1 GHz	0.01%
60	ELECTRO-TECHNICAL-ELECTRICAL EQUIPMENT (Source)	Oscilloscope (timebase)	Using Fluke 5522A MFC by direct method and RF generator	2 ns to 1 s	0.4%
61	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	PRT measurement	Using 6&1/2 digit DMM by direct measurement	0 degC to 600 degC	0.37degC

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 48 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
62	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	PRT measurement	Using 6&1/2 digit DMM by direct measurement	-200 degC to 0 degC	0.17degC
63	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Measure)	Temperature simulator(K type)	Using 8&1/2 digit DMM(Transmille 8081) by direct measurement	-140 degC to 1340 degC	0.6degC
64	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature by simulation method of RTD	Using Fluke 5522A MFC by direct method	-250 degC to 800 degC	0.26degC
65	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature by simulation method of thermocouple (K & J)	Using Fluke 5522A MFC by direct method	-200 degC to 1200 degC	0.3degC
66	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature by simulation method of thermocouple (R & S)	Using Fluke 5522A MFC by direct method	0 degC to 1750 degC	0.7degC
67	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Temperature by simulation method of thermocouple (T)	Using Fluke 5522A MFC by direct method	-250 degC to 400 degC	0.7degC

SCOPE OF ACCREDITATION

Laboratory Name :	CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA		
Accreditation Standard	ISO/IEC 17025:2017		
Certificate Number	CC-2741	**Page No**	49 of 52
Validity	11/09/2020 to 10/09/2022	**Last Amended on**	-

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
68	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple (E type)	Using temperature calibrator by Direct source	0 degC to 800 degC	0.4degC
69	ELECTRO-TECHNICAL-TEMPERATURE SIMULATION (Source)	Thermocouple (N type)	Using temperature calibrator by Direct Source	0 degC to 1000 degC	0.4 degC
70	ELECTRO-TECHNICAL-TIME & FREQUENCY (Measure)	Using time interval meter by using comparison method	Using time interval meter by using comparison method	6 s to 9999 s	0.07 s to 6.3 s
71	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency and period	Using RF generator by direct method	100 kHz to 1 GHz	0.01 % to 0.11 %
72	ELECTRO-TECHNICAL-TIME & FREQUENCY (Source)	Frequency and period	Using fluke 5522A MFC by direct method	50 mHz to 2 MHz	0.11 % to 0.0032 %

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 50 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
73	MECHANICAL-ACCELERATION AND SPEED	Speed measurement in rpm-non contact type	Using tachometer-non contact. Tachometer Calibrator of INDEECON make and calibrated Tachometer	10 rpm to 99,000 rpm	1 rpm to 12 rpm
74	MECHANICAL-ACCELERATION AND SPEED	Tachometer-contact	Using tachometer contact type. Tachometer Calibrator of INDEECON make and calibrated Tachometer	10 rpm to 10000 rpm	7 rpm to 10 rpm
75	MECHANICAL-ACOUSTICS	Sound level meter	Using sound calibrator	94 & 114 db @ 1kHz	0.7dB
76	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic pressure indicator instrument and gauges	Using digital pressure indicator with uncertainty of 0.05bar	0 to 400 bar	0.1bar
77	MECHANICAL-PRESSURE INDICATING DEVICES	Hydraulic pressure indicator instrument and gauges	Using digital pressure indicator with uncertainty of 0.07bar	0 to 700 bar	0.2bar
78	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic pressure indicator instrument and gauges	Using digital pressure indicator with uncertainty of 4mbar	0 to 35 bar	4mbar

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 51 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
79	MECHANICAL-PRESSURE INDICATING DEVICES	Pneumatic pressure indicator instrument and gauges	Using digital pressure indicator with uncertainty of 0.06mbar	-200 mbar to 200 mbar	0.2mbar
80	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Force measuring system of UTM compression	Using Class 1 load cells as per IS1828(part 1)	25 N to 50 kN	0.5%
81	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Force measuring system of UTM compression	Using class 1 load cells as per IS1828(part 1)	50 kN to 500 kN	0.5%
82	MECHANICAL-UTM, TENSION CREEP AND TORSION TESTING MACHINE	Force measuring system of UTM tension	Using class 1 load cells as per IS1828 (part 1)	25 N to 50 kN	0.5%
83	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance , Class I, d=0.1mg	Using E1 class weights as per OIML R76	10 mg to 200 g	0.12mg
84	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance , Class II, d=100mg	Using E1 and F1 class weights as per OIML R76	2 g to 20 Kg	100mg

SCOPE OF ACCREDITATION

Laboratory Name : CALITRON CALIBRATION LABORATORY, 207, KOHINOOR ARCADE, NIGDI, PUNE, MAHARASHTRA, INDIA

Accreditation Standard ISO/IEC 17025:2017

Certificate Number CC-2741 **Page No** 52 of 52

Validity 11/09/2020 to 10/09/2022 **Last Amended on** -

S.No	Discipline / Group	Measurand or Reference Material/Type of instrument or material to be calibrated or measured / Quantity Measured /Instrum	Calibration or Measurement Method or procedure	Measurement range and additional parameters where applicable(Range and Frequency)	* Calibration and Measurement Capability(CMC)(±)
85	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance , Class II, d=1mg	Using E1 class weights as per OIML R76	20 mg to 1000 g	2mg
86	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance , Class III, d=0.5g	Using F1 and M1 class weights as per OIML R76	1 g to 50 kg	400mg
87	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance ,Class III, d=1g	Using F1 and M1 class weights as per OIML R76	20 g to 100 kg	2g
88	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance, Class I, d=0.001mg	E1 class weight based on OIML R76	1 mg to 3 g	0.007mg
89	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance, Class I, d=0.01mg	Using E1 class weights as per OIML R76	1 mg to 200 g	0.03mg
90	MECHANICAL-WEIGHING SCALE AND BALANCE	Weighing balance, Class II, d=10mg	Using E1and F1 class weights as per OIML R76	200 mg to 10 kg	10mg

*** CMCs represent expanded uncertainties expressed at approximately the 95% level of confidence, using a coverage factor of k = 2.**