FEDERATION FOR DEVELOPMENT OF ACCREDITATION SERVICES

118-119, First Floor, Sushant Tower, Sector – 56, Gurugram – 122011, Haryana, India.

CERTIFICATE OF ACCREDITATION

(AS PER ISO/IEC 17025:2017)

This is to attest that

M/s YADAV MEASUREMENTS PRIVATE LIMITED

373-375 RIICO Bhama Shah Industrial Area Kaladwas
Udaipur-313003 (Rajasthan), India

Calibration Laboratory

has demonstrated compliance with ISO/IEC Standard 17025:2017, General requirements for the competence of testing and calibration laboratories and supplementary criteria for Calibration laboratories.

Certificate Number: CL- 126

Issue Date: 12.06.2024 **Valid Until:** 11.06.2026

The certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard and the relevant requirements of FDAS. (For scope of accreditation visit website www. fdasindia.org).

DEVI SARAN TEWARI
Director

FEDERATION FOR DEVELOPMENT OF ACCREDITATION SERVICES

118-119, First Floor, Sushant Tower, Sector – 56, Gurugram – 122011, Haryana, India.

SCOPE OF ACCREDITATION

(Annexure to Certificate of CL - 126)

Laboratory Name: M/s Yadav Measurements Private Limited
373 – 375 RIICO Bhama Shah Industrial Area
Kaladwas Udaipur- 313003 (Rajasthan), India

Validity: 12.06.2024 to 11.06.2026 **Amended on** N/A

S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (Laboratory based)		
Group: Alternating Current				
1	Power Frequency	Using calibrator by direct method	40Hz to 70Hz	0.0028 Hz to 0.0049 Hz
2	Magnitude of Supply Voltage3Phase & 1Phase	Using calibrator by direct method	57.7V to 240V 10% to 150% 50Hz/60Hz	0.40% to 0.07%
3	Magnitude of Current	Using calibrator by direct method	1A to 5A 10% to 100% 50Hz/60Hz	0.20% to 0.08%
4	Voltage interruption, dips and swell	Using calibrator by direct method	57.7V to 240V 50Hz/60Hz (0 to 200%)	0.40% to 0.07%
5	Voltage Harmonics Voltage Interharmonics/ Mains Signalling in Voltage	Using calibrator by direct method	57.7V to 240V (50Hz/60Hz) (2nd to 50th order) (0.1% to 16%)	1.20%
6	Current Harmonics Current Interharmonics	Using calibrator by direct method	1A to 5A (50Hz/60Hz) (2nd to 50th order) (0.1% to 60%)	1.20%
7	Total Harmonic distortion for Voltage and Current	Using calibrator by direct method	1A to 5A (50Hz/60Hz) (2nd to 50th order)	1.20%
8	Voltage Unbalance	Using calibrator by direct method	57.7V to 240V (50Hz/60Hz) (0% to 5.2%)	0.40% to 0.07%

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Kaladwas Udaipur- 313003 (Rajasthan), India

Validity: 12.06.2024 to 11.06.2026 **Amended on** N/A

S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (Laboratory based)		
9	Current Unbalance	Using calibrator by direct method	1A to 5A (50Hz/60Hz) (0% to 18.1%)	0.07% to 0.08%
10	Flicker/Voltage Fluctuations Sinusoidal / Rectangular modulation	Using calibrator by direct method	230V/120V (50Hz/60Hz) (0.008Hz to 40Hz) (1CPM to 4800CPM) Pst:- 0.2 to 10 Pinst	0.33% to 0.50%
11	Three Phase Voltage dips, short interruptions and variations (16Amp) for 50Hz and 60Hz			
11.1	Phase Angle	IEC 61000-4-11:2020 EN 61000-4-11:2022	0° to 360°	1.5°
11.2	Rise time /Fall time		0.1 to 5µs	3.0%
11.3	No load Voltage		1 to 240V (P-N), 415 (P-P)	2.0%
11.4	Inrush Current		Up to 500 Amp	3.5%
11.5	Time Interval		1ms to 5min	3.0%
11.6	Output current capability for 16Amp generator		Up to 40Amp	3.0%
11.7	Open circuit Overshoot and undershoot		1V to 240V	2.0%

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (Laboratory based)		
Group: Direct Current				
12	DC Voltage dips, short interruptions and variations (21 Amp)			
12.1	Rise time /Fall time	IEC 61000-4-29:2000 EN 61000-4-29:2002	0.1 to 50µs	3.0%
12.2	No load Voltage		1 to 425V	2.0%
12.3	Inrush Current		50A at 24V 100A at 48V 220A at 110V	3.5%
12.4	Time Interval		1ms to 5min	3.0%
12.5	Output current		Up to 21 Amp	2.5%
12.6	Output voltage variation with load		0.1 to 25V Up to 21A	3.0%
12.7	Open circuit Overshoot and undershoot		1V to 425Vdc	2.0%
12.8	Ripple content		0.1 to 10V	2.5%
Group: Electrical Equipment				
13	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Ratio Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	33 kV to 220 kV (Primary) 50.8 V to 132 V (Secondary)	0.015%
14	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Phase Angle Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	33 kV to 220 kV (Primary) 50.8 V to 132 V (Secondary)	0.89min

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Validity: 12.06.2024 to 11.06.2026 **Amended on** N/A

S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (Laboratory based)		
15	Current Transformer (Primary Injection) Ratio Error	Using Precision current transformer & Automatic Instrument transformer test set by Comparison Method	5A to 2000 A (Primary) 1A,5A (Secondary)	0.021% to 0.029%
16	Current Transformer (Primary Injection) Phase Error	Using Precision current transformer & Automatic Instrument transformer test set by Comparison Method	5A to 2000A (Primary) 1A, 5A (Secondary)	0.68 min to 1.45 min
17	Current Transformer (Secondary Injection) Ratio Error	Using Portable CT/VT Calibrator by Direct Method	10 A to 10000 A (Primary) 1A, 5A (Secondary) 5A (Primary) 5A(Secondary)	0.10%
18	Current Transformer (Secondary Injection) Phase Error	Using Portable CT/VT Calibrator by Direct Method	10 A to 10000 A (Primary) 1A, 5A (Secondary) 5A (Primary) 5A(Secondary)	3.40 min to 6.33 min
19	Voltage Transformer (Secondary Injection) Ratio Error	Using Portable CT/VT Calibrator by Direct Method	2.2 kV to 33 kV (Primary) 50.8 V to 132 V (Secondary)	0.15%
20	Voltage Transformer (Secondary Injection) Phase Error	Using Portable CT/VT Calibrator by Direct Method	2.2 kV to 33 kV (Primary) 50.8 V to 132 V (Secondary)	5.6min

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (Laboratory based)		
21	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Ratio Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	110 V to 2.2 kV (Primary) 50.8 V to 132 V (Secondary)	0.05%
22	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Phase Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	110 V to 2.2 kV (Primary) 50.8 V to 132 V (Secondary)	2.0 min
23	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Ratio Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	2.2 kV to 6.6 kV (Primary) 50.8 V to 132 V (Secondary)	0.10%
24	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Phase Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	2.2 kV to 6.6 kV (Primary) 50.8 V to 132 V (Secondary)	2.50 min
25	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Ratio Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	6.6 kV to 11 kV (Primary) 50.8 V to 132 V (Secondary)	0.039% to 0.014%

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (Laboratory based)		
26	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Phase Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	6.6 kV to 11 kV (Primary) 50.8 V to 132 V (Secondary)	0.78 min to 1.23 min
27	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Ratio Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	11 kV to 33 kV (Primary) 50.8 V to 132 V (Secondary)	0.015%
28	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Phase Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	11 kV to 33 kV (Primary) 50.8 V to 132 V (Secondary)	0.78 min to 0.89 min
Group: Special HF Measurements				
29	EFT/Burst Generators			
29.1	Peak Voltage Into 50Ω & 1kΩ	IEC 61000-4-4:2012	0.25 kV to 7 kV	2.54%
29.2	Rise time and Pulse width		5ns to 50ns	3.0%
29.3	Burst period and Duration		15ms to 300ms	2.0%
29.4	Frequency		2.5 kHz, 5 kHz, 100 kHz	1.17%

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
	Electro - Technical Calibration (Laboratory based)			
30	Surge Generators			
30.1	Open circuit Voltage	IEC 61000-4-5:2014 Amd1:2017	0.5 kV to 15 kV	4.21%
30.2	Front time and Duration		0.5 µs to 700 µs	3.15%
30.3	Short circuit current		0.25 kA to 7.5 kA	4.5%
30.4	Phase Angle		0° to 360°	1.5°
30.5	Open circuit Overshoot and undershoot		0.5 kV to 15 kV	3.8%
31	Damped oscillatory wave Generators			
31.1	Open circuit Voltage	IEC 61000-4-18:2019	0.5 kV to 4kV	3.8%
31.2	Rise time		1.0 ns to 1 s	3.0%
31.3	Short circuit current		2.5 A to 20.0A	4.0%
31.4	Voltage oscillation Frequencies		100 kHz and 1 MHz	@ 2.5kV,100kHz 0.5%
31.5	Repetition rate		40/s for 100kHz and 400/s for 1MHz	@ 2.5kV,100kHz 0.6%
31.6	Decaying		Peak (5) >50% Peak (1) Peak (10) < 50% Peak (1)	3.5%
31.7	Burst duration.		not less than 2s	0.5%

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
	Electro - Technical Calibration (Laboratory based)			
32	Ring wave Generators			
32.1	Open circuit Voltage	IEC 61000-4-12:2017	0.25 kV to 6kV	4.0%
32.2	Rise time		0.2µs to 1.0 µs	3.0%
32.3	Short circuit current		8.0 A to 500.0A	3.5%
32.4	Voltage Oscillation Frequencies		100 kHz and 1 MHz	0.5%
32.5	Repetition rate		1/minute or 1/second	0.5%
32.6	Decaying		0.4 ≤ ratio of Pk_2 to Pk_1 ≤ 1.1 0.4 ≤ ratio of Pk_3 to Pk_2 ≤ 0.8 0.4 ≤ ratio of Pk_4 to Pk_3 ≤ 0.8	3.5%
32.7	Phase Angle		0° to 360°	1.5°
33	High frequency field uniformity (GETM/3m Anechoic chamber)			
33.1	GTEM (20-3000) MHz	IEC 61000-4-3:2020	1V/m to 30V/m	0.38V/m@1V/m 1.14V/m@3V/m 3.80V/m@10V/m 11.36V/m@30V/m
33.2	Anechoic chamber (80-6000) MHz		1V/m to 30V/m	0.38V/m@1V/m 1.14V/m@3V/m 3.80V/m@10V/m 11.36V/m@30V/m

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (Laboratory based)		
34	Immunity to conducted, differential mode disturbances and signaling in frequency range 2kHz to 150kHz at ac power port			
34.1	Differential Current measurement	IEC 61000-4-19:2014	0.5 to 4.4 Amp	3.5%
34.2	Impedance measurements		1 ohm	3.5%
34.3	Voltage measurement		0.5 to 5 Volt	3.0%
34.4	Pulse Duration measurement.		1ms to 3s	0.63%
34.5	Frequency measurement		2kHz to 150kHz	0.5%

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Validity: 12.06.2024 to 11.06.2026 **Amended on** N/A

S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (At Site)		
Group: Alternating Current				
1	Power Frequency	Using calibrator by direct method	40Hz to 70Hz	0.0049 Hz to 0.0086 Hz
2	Magnitude of Supply Voltage 3Phase & 1Phase	Using calibrator by direct method	57.7V to 240V 10% to 150% 50Hz/60Hz	0.40% to 0.07%
3	Magnitude of Current	Using calibrator by direct method	1A to 5A 10% to 100% 50Hz/60Hz	0.20% to 0.08%
4	Voltage interruption, dips and swell	Using calibrator by direct method	57.7V to 240V 50Hz/60Hz (0 to 200%)	0.40% to 0.07%
5	Voltage Harmonics Voltage Interharmonics/ Mains Signalling in Voltage	Using calibrator by direct method	57.7V to 240V (50Hz/60Hz) (2nd to 50th order) (0.1% to 16%)	1.20%
6	Current Harmonics Current Interharmonics	Using calibrator by direct method	1A to 5A (50Hz/60Hz) (2nd to 50th order) (0.1% to 60%)	1.21%
7	Total Harmonic distortion for Voltage and Current	Using calibrator by direct method	1A to 5A (50Hz/60Hz) (2nd to 50th order)	1.21%

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (At Site)		
8	Voltage Unbalance	Using calibrator by direct method	57.7V to 240V (50Hz/60Hz) (0% to 5.2%)	0.40% to 0.07%
9	Current Unbalance	Using calibrator by direct method	1A to 5A (50Hz/60Hz) (0% to 18.1%)	0.07% to 0.08%
10	Flicker/Voltage Fluctuations Sinusoidal / Rectangular modulation	Using calibrator by direct method	230V/120V (50Hz/60Hz) (0.008Hz to 40Hz) (1CPM to 4800CPM) Pst:- 0.2 to 10 Pinst	0.33% to 0.50%
11	Three Phase Voltage dips, short interruptions and variations (16Amp) for 50Hz and 60Hz			
11.1	Phase Angle	IEC 61000-4-11:2020 EN 61000-4-11:2022	0° to 360°	2.0°
11.2	Rise time /Fall time		0.1 to 5µs	3.0%
11.3	No load Voltage		1 to 240Vac (P-N), 415 (P-P)	2.5%
11.4	Inrush Current		Up to 500 Amp	3.5%
11.5	Time Interval		1ms to 5min	3.5%
11.6	Output current capability for 16Amp generator		Up to 40Amp	3.5%
11.7	Open circuit Overshoot and undershoot		1V to 240Vac	3.0%

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (At Site)		
Group: Direct Current				
12	DC Voltage dips, short interruptions and variations (32 Amp)			
12.1	Rise time /Fall time	IEC 61000-4-29:2000 EN 61000-4-29:2002	0.1 to 50µs	3.5%
12.2	No load Voltage		1 to 425Vdc	2.5%
12.3	Inrush Current		50A at 24V 100A at 48V 220A at 110V	4.0%
12.4	Time Interval		1ms to 5min	3.5%
12.5	Output current		Up to 32 Amp	3.0%
12.6	Output voltage variation with load		0.2 to 25V Up to 40A	4.0%
12.7	Open circuit Overshoot and undershoot		1V to 425V	2.5%
12.8	Ripple content		0.1 to 10V	3.0%
Group: Electrical Equipments				
13	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Ratio Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	33 kV to 220 kV (Primary) 50.8 V to 132 V (Secondary)	0.025% to 0.032%
14	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Phase Angle Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	33 kV to 220 kV (Primary) 50.8 V to 132 V (Secondary)	1.46 to 1.62 min

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (At Site)		
15	Current Transformer (Primary Injection) Ratio Error	Using Precision current transformer & Automatic Instrument transformer test set by Comparison Method	5A to 2000 A (Primary) 1A, 5A (Secondary)	0.024% to 0.043%
16	Current Transformer (Primary Injection) Phase Error	Using Precision current transformer & Automatic Instrument transformer test set by Comparison Method	5A to 2000A (Primary) 1A, 5A (Secondary)	1.40 min to 1.59 min
17	Current Transformer (Secondary Injection) Ratio Error	Using Portable CT/VT Calibrator by Direct Method	10 A to 10000 A (Primary) 1A, 5A (Secondary) 5A (Primary) 5A(Secondary)	0.10%
18	Current Transformer (Secondary Injection) Phase Error	Using Portable CT/VT Calibrator by Direct Method	10 A to 10000A (Primary) 1A, 5A (Secondary) 5A (Primary) 5A(Secondary)	2.80 min to 6.32 min
19	Voltage Transformer (Secondary Injection) Ratio Error	Using Portable CT/VT Calibrator by Direct Method	2.2 kV to 33 kV (Primary) 50.8 V to 132 V (Secondary)	0.15%
20	Voltage Transformer (Secondary Injection) Phase Error	Using Portable CT/VT Calibrator by Direct Method	2.2 kV to 33 kV (Primary) 50.8 V to 132 V (Secondary)	5.60 min

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (At Site)		
21	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Ratio Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	110 V to 2.2 kV (Primary) 50.8 V to 132 V (Secondary)	0.094%
22	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Phase Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	110 V to 2.2 kV (Primary) 50.8 V to 132 V (Secondary)	2.00 min
23	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Ratio Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	2.2 kV to 6.6 kV (Primary) 50.8 V to 132 V (Secondary)	0.10%
24	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Phase Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	2.2 kV to 6.6 kV (Primary) 50.8 V to 132 V (Secondary)	2.50 min
25	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Ratio Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	6.6 kV to 11 kV (Primary) 50.8 V to 132 V (Secondary)	0.039% to 0.018%

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (At Site)		
26	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Phase Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	6.6 kV to 11 kV (Primary) 50.8 V to 132 V (Secondary)	1.62 min
27	Voltage Transformer / Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Ratio Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	11 kV to 33 kV (Primary) 50.8 V to 132 V (Secondary)	0.023%
28	Voltage Transformer /Capacitor VOLTAGE TRANSFORMER/ VOLTAGE DIVIDER Phase Error	Using Automatic Instrument transformer test set & EMVT by Comparison Method	11 kV to 33 kV (Primary) 50.8 V to 132 V (Secondary)	1.48 min
Group: Special HF Requirements				
29	EFT/Burst Generators			
29.1	Peak Voltage Into 50Ω & 1kΩ	IEC 61000-4-4:2012	0.25 kV to 7 kV	3.0%
29.2	Rise time and Pulse width		5ns to 50ns	5.0%
29.3	Burst period and Duration		15ms to 300ms	5.0%
29.4	Frequency		2.5 kHz, 5 kHz, 100 kHz	5.0%

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
	Electro - Technical Calibration (At Site)			
30	Surge Generators			
30.1	Open circuit Voltage	IEC 61000-4-5:2014 +Amd1:2017	0.5 kV to 15 kV	4.5%
30.2	Front time and Duration		0.5 µs to 700 µs	3.5%
30.3	Short circuit current		0.25 kA to 7.5 kA	5.0%
30.4	Phase Angle		0° to 360°	1.7°
30.5	Open circuit Overshoot and undershoot		0.5 kV to 15 kV	5.0%
31	Damped oscillatory wave Generators			
31.1	Open circuit Voltage	IEC 61000-4-18:2019	0.5 kV to 4kV	4.0%
31.2	Rise time		1.0 ns to 1.s	3.5%
31.3	Short circuit current		2.5 A to 20.0A	4.5%
31.4	Voltage oscillation Frequencies		100 kHz and 1 MHz	@2.5kV,100kHz 0.6%
31.5	Repetition rate		40/s for 100kHz and 400/s for 1MHz	@2.5kV,100kHz 0.6%
31.6	Decaying		0.4 ≤ ratio of Pk_2 to Pk_1 ≤ 1.1 0.4 ≤ ratio of Pk_3 to Pk_2 ≤ 0.8 0.4 ≤ ratio of Pk_4 to Pk_3 ≤ 0.8	4.0%
31.7	Burst duration		not less than 2s	0.8%

Himanshu

Dealing Officer

SCOPE OF ACCREDITATION

(Annexure to Certificate of CL - 126)

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373 – 375 RIICO Bhama Shah Industrial Area
Kaladwas Udaipur- 313003 (Rajasthan), India

Validity: 12.06.2024 to 11.06.2026 **Amended on** N/A

S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
	Electro - Technical Calibration (At Site)			
32	Ring wave Generators			
32.1	Open circuit Voltage	IEC 61000-4-12:2017	0.25 kV to 6kV	4.5%
32.2	Rise time		0.2us to 1.0us	3.5%
32.3	Short circuit current		8.0 A to 500.0A	4.0%
32.4	Voltage Oscillation Frequencies		100 kHz and 1 MHz	0.8%
32.5	Repetition rate		1/minute or 1/second	0.8%
32.6	Decaying		0.4 ≤ ratio of Pk_2 to Pk_1 ≤ 1.1 0.4 ≤ ratio of Pk_3 to Pk_2 ≤ 0.8 0.4 ≤ ratio of Pk_4 to Pk_3 ≤ 0.8	3.5%
32.7	Phase Angle		0° to 360°	1.5°
33	High frequency field uniformity (GETM/3m Anechoic chamber)			
33.1	GTEM (20-3000) MHz	IEC 61000-4-3:2020	1V/m to 30V/m	0.38V/m@1V/m 1.14V/m@3V/m 3.80V/m@10V/m 11.36V/m@30V/m
33.2	Anechoic chamber (80-6000) MHz		1V/m to 30V/m	0.38V/m@1V/m 1.14V/m@3V/m 3.80V/m@10V/m 11.36V/m@30V/m

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S.No.	Parameter	Calibration Method/ Procedure & Equipment used as Reference Standard	Range	Uncertainty in Measurement (±) *
		Electro - Technical Calibration (At Site)		
34	Immunity to conducted, differential mode disturbances and signaling in frequency range 2kHz to 150kHz at ac power port			
34.1	Differential Current measurement	IEC 61000-4-19:2014	0.5 to 4.4 Amp	4.0
34.2	Impedance measurements		1Ohm	3.8%
34.3	Voltage measurement		0.5 to 5 Volt	3.5%
34.4	Pulse Duration measurement. Pulse Duration Measurement		1ms to 3s	1.0%
34.5	Frequency measurement		2kHz to 150kHz	0.5%

Dealing Officer