Reflecting the Truth

CERTIFICATE OF CALIBRATION

Issued By :

YADAV MEASUREMENTS PVT. LTD.
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C-035
Electro- Technical

UKAS CALIBRATION
0616

Certificate number:-YMPL/91679/11417

1. Name and address of client :- SONAA ENGINEERS PVT. LTD.
   308-310 SUBHAM COMPLEX
   NEW FETEHPURA, UDAIPUR (RAJ.)

2. Reference:

Service request form Number:	2006-2007/1609
Date:	17th February, 2007
Date of the receipt of the equipment:	17th February, 2007
Condition on item:	Satisfactory

3. Calibration certificate:

Date of issue:	22nd February, 2007
Date of calibration:	17th February, 2007
Calibration due date:	17th February, 2010

4. Description of equipment under calibration: -

Name:	Digital multimeter
Serial number:	67440
Model:	13S
Make :	RISHAB

5. Environmental conditions of measurements:

Temperature	25±2°C
Relative humidity:	≤ 70%

6. Description of reference standards used :

Reference standard	Calibration valid upto	Traceability	Parameters
Multi product calibrator, Model:5500A, Make: Fluke I/S No. 745	6th December, 2007	ETDC, Bangalore via YMPL standards	d.c. voltage, d.c. current, a.c. voltage, a.c. current, Resistance

Remarks :-

1. For k=2
   The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS/NABL requirements. ☑
2. For k≠2
   The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k, which for a t-distribution corresponds to a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements. ☒
3. This report is specific for E.U.C. for environmental and other conditions mentioned in this report. ☑
4. The reported uncertainty applies only to the measured value and gives no indication of the long term stability of the device. ☑
5. The instrument has been calibrated for calibration points required by customer. ☑
6. The calibration due date has been mentioned as requested by customer in writing. ☑

Checked by : RMP RSD

Approved by : Dinesh Paliwal
Sign. :
Name : DP

7. Calibration procedure :OP/YMPL/03
Equipment under calibration was calibrated for d.c. voltage & current, a.c. voltage & current and resistance by injecting it from Multi product calibrator.
At least 6 measurements were made for each value and an average was reported. EUC was powered up from its internal supply source (i.e. 9 Volt battery) and warmed up for at least 15 Minute.

8. Results: The Digital multimeter has been calibrated for d.c. voltage & current, a.c. voltage & current & Resistance measurement. The expended uncertainty of our measurement is given in front of each measurement & calculated at 95 % CL. The results are as following.

9. **Accuracy calibration results:-**

Parameter	Range	Measured value	Standard value	± Expended uncertainty (%)	Coverage factor(k)
d.c. voltage :	30mV	3.02mV	3.000mV	0.23	2.00
		15.01mV	15.000mV	0.05	2.00
		27.01mV	27.000mV	0.03	2.00
	300mV	29.9mV	30.00mV	0.19	2.00 *
		149.9mV	150.00mV	0.04	2.00
		270.0mV	250.00mV	0.02	2.00
	3V	0.299V	0.3000V	0.18	2.00 *
		1.499V	1.5000V	0.04	2.00
		2.700V	2.7000V	0.02	2.00
	30V	2.99V	3.000V	0.17	2.00 *
		14.99V	15.000V	0.04	2.00
		26.99V	27.000V	0.02	2.00
	300V	29.9V	30.00V	0.17	2.00 *
		149.8V	150.00V	0.04	2.00
		269.8V	270.00V	0.02	2.00
	1000V	99V	100.0V	0.51	2.00 *
		499V	500.0V	0.11	2.00 *
		899V	900.0V	0.06	2.00
a.c. voltage : (at 50Hz, sine wave)	3V	0.297V	0.3000V	0.25	2.00
		1.496V	1.5001V	0.16	2.00
		2.695V	2.6999V	0.16	2.00
	30V	2.97V	3.000V	0.25	2.00
		14.95V	14.996V	0.16	2.00
		26.94V	26.992V	0.16	2.00

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UKAS Accredited calibration laboratory No. 0616
NABL Accredited calibration laboratory No. C-035

Issued by :
Yadav Measurements Pvt. Ltd., Udaipur

Certificate number: YMPL/91679/11417

Parameter	Range	Measured value	Standard value	± Expended uncertainty (%)	Coverage factor(k)
	300V	29.7V	29.99V	0.25	2.00
		149.5V	150.01V	0.08	2.00
		269.4V	270.02V	0.07	2.00
	1000V	98V	100.0V	0.58	2.00 *
		497V	500.0V	0.14	2.00
		697V	700.3V	0.19	2.00
DC CURRENT:	3mA	0.300mA	0.3000mA	0.18	2.00 *
		1.500mA	1.5000mA	0.04	2.00
		2.698mA	2.7001mA	0.03	2.00
	30mA	2.99mA	3.000mA	0.19	2.00 *
		14.98mA	15.000mA	0.04	2.00
		26.97mA	27.001mA	0.03	2.00
	300mA	30.0mA	30.00mA	0.18	2.00 *
		150.5mA	149.99mA	0.05	2.00
		180.6mA	179.99mA	0.05	2.00
	3A	0.299A	0.3000A	0.20	2.00
		1.500A	1.5000A	0.09	2.00
		2.700A	2.6993A	0.08	2.00
	16A	2.99A	2.999A	0.22	2.00
		4.99A	4.999A	0.16	2.00
		9.99A	9.999A	0.12	2.00
AC current: (50Hz, sine wave)	30mA	2.97mA	3.001mA	0.23	2.00
		14.95mA	15.007mA	0.13	2.00
		26.93mA	27.013mA	0.12	2.00
	300mA	29.9mA	30.01mA	0.23	2.00
		150.2mA	150.05mA	0.13	2.00
		270.4mA	270.10mA	0.12	2.00
	16A	2.98A	3.001A	0.24	2.00
		4.97A	5.001A	0.17	2.00
		9.98A	10.003A	0.11	2.00
Resistance :	30 ohm	3.15 ohm	3.000 ohm	0.36	2.00
		15.14 ohm	14.999 ohm	0.08	2.00
		27.11 ohm	26.999 ohm	0.08	2.00

Checked by : RNP RSD

Approved by : 0103

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Parameter	Range	Measured value	Standard value	± Expended uncertainty (%)	Coverage factor(k)
	300 ohm	30.0 ohm	30.00 ohm	0.21	2.00
		149.9 ohm	150.00 ohm	0.04	2.00
		269.7 ohm	270.01 ohm	0.03	2.00
	3 kohm	0.299 kohm	0.3000 kohm	0.18	2.00 *
		1.498 kohm	1.5000 kohm	0.04	2.00
		2.696 kohm	2.7000 kohm	0.02	2.00
	30 kohm	2.98 kohm	3.000 kohm	0.18	2.00 *
		14.97 kohm	15.000 kohm	0.04	2.00
		26.94 kohm	27.000 kohm	0.03	2.00
	300 kohm	29.9 kohm	30.00 kohm	0.18	2.00 *
		149.7 kohm	150.00 kohm	0.04	2.00
		269.3 kohm	270.00 kohm	0.03	2.00
	3 Mohm	0.299 Mohm	0.3000 Mohm	0.20	2.00
		1.498 Mohm	1.5000 Mohm	0.04	2.00
		2.694 Mohm	2.7001 Mohm	0.05	2.00
	30 Mohm	3.02 Mohm	3.000 Mohm	0.20	2.00
		15.02 Mohm	15.002 Mohm	0.09	2.00
		27.02 Mohm	27.003 Mohm	0.13	2.00

Remarks :

1. "*" indicates that the uncertainty quoted is dominated by the uncertainty due to resolution of EUC for which a rectangular probability distribution has been assumed.

Checked by :	Approved by :
RMP RSD	