सत्यमेव जयते

TEST / CALIBRATION REPORT

Calibration Report
for
MECO Digital Clamp-On Power Meter

Customer's Specification

ELECTRONICS REGIONAL TEST LABORATORY (WEST)

MINISTRY OF COMMUNICATIONS & INFORMATION TECHNOLOGY, (STQC Dte.)

Government of India

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ELECTRONICS REGIONAL TEST LABORATORY (WEST) DEPARTMENT OF INFORMATION TECHNOLOGY (STQC Dte.)	REPORT NO. ERTL(W)/2003E&S257 /		
SUBJECT: TESTING OF DIGITAL TONG TESTER / CLAMP-ON POWER METER	DATE 30 JAN 2004	PAGE 1	OF 5

1. **SCOPE**

1.1 Service Request No : ERTL (W) / 20032546 dated 24th December 2003

1.1.1 Service Request finalised on : 24th December 2003

1.2 Requested by
(Name and address of organisation) : MECO INSTRUMENTS PVT. LTD.
301, BHARAT INDUSTRIAL ESTATE,
T.J. ROAD, SEWRI,
MUMBAI - 400 015

1.3

Description	Qty	Manufacturer	Model	Serial Nos.
DIGITAL TONG TESTER / CLAMP-ON POWER METER	01 No.	MECO	3510 PHW	021102702

1.4 Test specifications : Customer's specification

1.5 Lab Ambient : Temperature : (25 ±2) deg.C
Humidity : (55 ±5) % RH

1.6 Test Equipment used :

1.	Energy Meter Test Bench	E&S/126
2.	Multifunction Calibrator	S&C/138
3.	Decade Resistance Box	S&C/135
4.	Environmental Chamber	ENV/064
5.	Vibration system	ENV/008
6.	Shock Test Machine	ENV/018

Reviewed by:

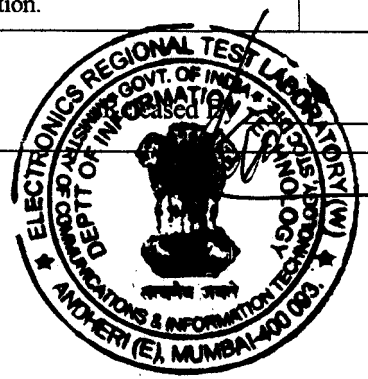
ELECTRONICS REGIONAL TEST LABORATORY (W) • GOVT. OF INDIA • DEPT. OF INFORMATION TECHNOLOGY • DEPT. OF COMMUNICATIONS & INFORMATION TECHNOLOGY • ANDHERI (E), MUMBAI-400 093.

2.0 Test Results

Sr.No.	Test/Parameter	Ref. Clause No.	Test Condition	Requirement	Observation	Remark
2.1	Insulation Resistance	7.1 of IS 1248-Part 1	At 500 V DC for 1 min. between terminals shorted together and body.	Not less than 5 M ohm	More than 2000 M ohm	Complied
2.2	High Voltage Test	7.1 of IS 1248-Part 1	AT 2 kV AC (rms) for 1 min. between terminals shorted together and foil wrapped on body.	There shall not be any breakdown/ flashover.	No breakdown/ flashover observed.	Complied
2.3	Intrinsic Error	4 of IS 1248-Part 7. 4.2 of IS 13875-Part 1.	Ranges as per the technical specification of the UUT	Accuracy of each function Shall be within the specified limit.	Percentage error observed with in the specified limit of each function.	
2.4	**Variation due to influencial quantities**					
2.4.1	Variation due to ambient temp.	Table 2 of IS 1248-Part 1.	Ranges as per the technical specification of the UUT	Variation shall not exceed class index	The results were within the limits	Complied
2.4.2	Variation due to humidity	Table 2 of IS 1248-Part 1.	Ranges as per the technical specification of the UUT	Variation shall not exceed class index	The results were within the limits	Complied
2.4.3	Variation due to distortion of AC measured quantity.	Table 2 of IS 1248-Part 1.	Ranges as per the technical specification of the UUT	Variation shall not exceed class index	The results were within the limits	Complied
2.4.4	Variation due to frequency of AC measured quantity.	Table 2 of IS 1248-Part 1.	Ranges as per the technical specification of the UUT	Variation shall not exceed class index	The results were within the limits	Complied

Released By

Sr.No.	Test/Parameter	Ref. Clause No.	Test Condition	Requirement	Observation	Remark
2.4.5	Variation due to position	Table 2 of IS 1248-Part 1.	Ranges as per the technical specification of the UUT	Variation shall not exceed class index	The results were within the limits	Complied
2.4.6	Variation due to magnetic field of external origin	Table 2 of IS 1248-Part 1.	Ranges as per the technical specification of the UUT	Variation shall not exceed class index	The results were within the limits	Complied
2.5	Self heating	7.3 of IS 1248-Part 1. 3.16 of IS 13875-Part 2.	Ranges as per the technical specification of the UUT	Variation shall not exceed class index	The results were within the limits	Complied
2.6	Temp. cycling	7.5.3 of IS 1248-Part 1.	40 deg.C for 16h & -10 deg.C for 8h. 3 cycles		Conditioned	---
2.6.1	Intrinsic Error	4 of IS 1248-Part 7. 4.2 of IS 13875-Part 1.	Ranges as per the technical specification of the UUT	Accuracy of each function Shall be within the specified limit.	Percentage error observed with in the specified limit of each function.	Complied



Sr.No	Test/ Parameter	Ref. Clause No.	Test Condition	Requirement	Observation	Remark
2.7	Vibration	8.7.1 of IS 1248-Part 1. 4.9.2 of IS 13875-Part 1.	As per IS 9000 Part 8, Sweep range: 10-150-10 Hz Displacement amplitude: 0.15 mm peak in the range 10-60 Hz, Acceleration: 2g in the range: 60-150 Hz, Sweep Rate: 1 octave/min., Duration : 6 h. Endurance shall be performed at resonance frequency. Vibration shall be applied at the resonance frequency for 6h in that direction. If the resonance is observed in any of these 3 directions, the equipment shall be subjected to vibration at each of the frequencies 25, 50, 100 and 150 Hz in each of the 3 mutually perpendicular direction so that the total duration shall not exceed 6 h.		Conditioned	---
2.7.1	Intrinsic Error	4 of IS 1248-Part 7. 4.2 of IS 13875-Part 1.	Ranges as per the technical specification of the UUT	Accuracy of each function Shall be within the specified limit.	Percentage error observed with in the specified limit of each function.	Complied
2.8	Shock Test	As per IS 9000 P-7, Peak Acceleration: 15g, Pulse shape: half sine, Duration: 11 ms, 3 shocks in both directions of 3 mutually perpendicular axes (total 18 shocks)	To be conditioned		Conditioned	---
2.8.1	Intrinsic Error	4 of IS 1248-Part 7. 4.2 of IS 13875-Part 1.	Ranges as per the technical specification of the UUT	Accuracy of each function Shall be within the specified limit.	Percentage error observed with in the specified limit of each function.	Complied

Received By _____

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3.0 **General Remarks:**

3.1

REPORT APPROVED BY **REPORT**

HEAD (E&S)

OUR ACCREDITATION STATUS

ERTL (W) set up under the STQC Directorate, Ministry of Communications & Information Technology, Govt. of India has been accreditated under number of national / international systems as follows :

SYSTEM	AREA	STATUS
IECQ (International Electro-technical Commission on Quality Assessment System for Electronic Components)	**Component Testing** • Resistors (Fixed) • Capacitors (Fixed)	Accreditated as ITL (Independent Test Laboratory)
NABL (C), India National Accreditational Board for Test & Calibration laboratories (Calibration System)	**Calibration** • Electro-technical discipline • Thermal discipline • Mechanical discipline	Accreditated Calibration Laboratory
NABL(T), India National Accreditational Board for Test & Calibration laboratories (Testing System)	Electronic & Electrical Testing	Accreditated Test Laboratory
IECEE-CE-Scheme	• Mains Operated Electronic Consumer Products	Approved as a CB test Laboratory
Other recognisation		Recognised by CSPO of State Govt., DOT, Naval Docyard, LCSO etc.