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|-------------------------------|--|--------------------|-------------------|
| <b>Laboratory</b>             | <b>M.E. Laboratory, PSPCL, Chugitti Chowk, Pathankot Road, Jalandhar, Punjab</b> |                    |                   |
| <b>Accreditation Standard</b> | <b>ISO/IEC 17025: 2005</b>   |                    |                   |
| <b>Discipline</b>             | <b>Electrical Testing</b>  | <b>Issue Date</b>  | <b>09.07.2015</b> |
| <b>Certificate Number</b>     | <b>T-2596</b>  | <b>Valid Until</b> | <b>08.07.2017</b> |
| <b>Last Amended on</b>        | <b>31.07.2015</b>  | <b>Page</b>        | <b>1 of 3</b>     |

| <b>S.No.</b> | <b>Product / Material of Test</b> | <b>Specific Test Performed</b> | <b>Test Method Specification against which tests are performed</b> | <b>Range of Testing / Limits of Detection</b> |
|--------------|-----------------------------------|--------------------------------|--|---|
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**AT LABORATORY**

**I. MEASURING INSTRUMENTS - ELECTRICAL AND ELECTRONIC (STATIC) ENERGY METERS**

|   |                        |  |   |
|---|------------------------|--|---|
| <b>1. Electronic Static Energy Meter (Accuracy Class 0.2 S, 0.5 S) (Accuracy Class, 1.0, 2.0)</b> | Limits of Error        | IS 14697 (RA 2009) Clause. 11.1<br>IS 13779 (RA 2009) Clause. 11.11                | 40 V to 320 V (P-N);<br>1 mA to 120 A;<br>50 Hz,<br>P.F. : (-)1 to (+)1     |
|   | Starting Condition     | IS 14697 (RA 2009) Clause. 11.4.1, 11.5, 12.13<br>IS 13779 (RA 2009) Clause. 12.14 | 40 V to 320 V (P-N);<br>1 mA to 120 A;<br>50 Hz,<br>P.F. : (-)1 to (+)1     |
|   | No Load Condition      | IS 14697 (RA 2009) Clause. 11.4, 12.12<br>IS 13779 (RA 2009) Clause. 12.13         | 40 V to 320 V (P-N);<br>1 mA to 120 A;<br>50 Hz,<br>P.F. : (-)1 to (+)1     |
|   | Repeatability of Error | IS 14697 (RA 2009) Clause. 11.7, 12.16<br>IS 13779 (RA 2009) Clause. 12.17         | 40 V to 320 V (P-N);<br>1 mA to 120 A;<br>50 Hz,<br>P.F. : (-)1 to (+)1     |
|   | AC High Voltage        | IS 14697 (RA 2009) Clause. 12.7.6.3<br>IS 13779 (RA 2009) Clause. 12.7.1           | Upto 5 kV   |
|   | Insulation Resistance  | IS 14697 (RA 2009) Clause. 12.7.6.4<br>IS 13779 (RA 2009) Clause. 12.7.6.4         | Insulation Resistance:<br>5 MΩ & 50 MΩ<br>Test Voltage<br>500(+)/(-)50 V DC |

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| <b>S.No.</b> | <b>Product / Material of Test</b>  | <b>Specific Test Performed</b>    | <b>Test Method Specification against which tests are performed</b>                | <b>Range of Testing / Limits of Detection</b>                           |
|--------------|--|-----------------------------------|---|---|
|              | <b>Electronic Static Energy Meter (Accuracy Class 0.2 S, 0.5 S) (Accuracy Class, 1.0, 2.0)</b> | Power Consumption                 | IS 14697 (RA 2009) Clause. 12.7.1<br>IS 13779 (RA 2009) Clause. 12.7.6.3          | Voltage Ckt:-<br>1.5 W & 10 VA<br>Current Ckt: 1 VA                     |
|              |  | Meter Constant                    | IS 14697 (RA 2009) Clause. 12.14<br>IS 13779 (RA 2009) Clause. 12.15              | 40 V to 320 V (P-N);<br>1 mA to 120 A;<br>50 Hz,<br>P.F. : (-)1 to (+)1 |
|              |  | Voltage Variation ( $\pm 10\%$ )  | IS 14697 (RA 2009) Clause. 11.2, 9.2.1, 12.10<br>IS 13779 (RA 2009) Clause. 12.11 | 40 V to 320 V (P-N);<br>1 mA to 120 A;<br>50 Hz,<br>P.F. : (-)1 to (+)1 |
|              |  | Frequency Variation ( $\pm 5\%$ ) | IS 14697 (RA 2009) Clause. 11.2, 9.2.1, 12.10<br>IS 13779 (RA 2009) Clause. 12.11 | 40 V to 320 V (P-N);<br>1 mA to 120 A;<br>50 Hz,<br>P.F. : (-)1 to (+)1 |
|              |  | Reversed Phase Sequence           | IS 14697 (RA 2009) Clause. 11.2, 9.2.1, 12.10<br>IS 13779 (RA 2009) Clause. 12.11 | 40 V to 320 V (P-N);<br>1 mA to 120 A;<br>50 Hz,<br>P.F. : (-)1 to (+)1 |
|              |  | Voltage Unbalance                 | IS 14697 (RA 2009) Clause. 11.2, 9.2.1, 12.10<br>IS 13779 (RA 2009) Clause. 12.11 | 40 V to 320 V (P-N);<br>1 mA to 120 A;<br>50 Hz,<br>P.F. : (-)1 to (+)1 |

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**Accreditation Standard** ISO/IEC 17025: 2005  
**Discipline** Electrical Testing **Issue Date** 09.07.2015  
**Certificate Number** T-2596 **Valid Until** 08.07.2017  
**Last Amended on** 31.07.2015 **Page** 3 of 3

| S.No. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|-------|----------------------------|-------------------------|---|--|
|-------|----------------------------|-------------------------|---|--|

**II. TRANSFORMERS AND REACTORS**

|    |   |                           |  |   |
|----|---|---------------------------|--|---|
| 1. | <b>Current Transformer</b><br>(Accuracy Class 0.2S, 0.5S)   | Ratio Error & Phase Error | IS 2705 (Part 2): 1992<br>Clause 3.3, Table 1a,1c<br>(RA 2007) | 5 A to 400 A  |
| 2. | <b>Potential Transformer</b><br>(Accuracy Class 0.2S, 0.5S) | Ratio Error & Phase Error | IS 3156 (Part 2): 1992<br>Clause 8.1.1 Table 1<br>(RA 2007)    | 11 kV/ $\sqrt{3}$ /110 V/ $\sqrt{3}$ &<br>11 kV/110 V |

**AT SITE**

**I. MEASURING INSTRUMENTS - ELECTRICAL AND ELECTRONIC (STATIC) ENERGY METERS**

|    |  |                 |  |   |
|----|--|-----------------|--|---|
| 1. | <b>Electronic Static Energy Meter</b><br>(Accuracy Class 0.2 S, 0.5 S)<br>(Accuracy Class, 1.0, 2.0) | Limits of Error | IS 14697 (RA 2009)<br>Clause. 11.1<br>IS 13779 (RA 2009)<br>Clause 11.11 | 63.5 V to 240 V (P-N)<br>0.25 A to 100 A<br>50 Hz |
|----|--|-----------------|--|---|

**-X-X-X-X-X-X-X-X-X-X-X-X-**