

CENTRAL POWER RESEARCH INSTITUTE
(Member of STL)



TEST REPORT

Test Report Number : CPRI BLRSCL22T0985 **Date:** 4 January 2023

Name and Address of the Customer : M/s. CG Power and Industrial Solutions Limited,
D-2 & D-1/2, MIDC, Waluj, Aurangabad – 431 136,
Maharashtra, India.

Name and Address of the Manufacturer : M/s. CG Power and Industrial Solutions Limited,
D-2 & D-1/2, MIDC, Waluj, Aurangabad – 431 136,
Maharashtra, India.

Particulars of sample tested : 145 kV, 300-600-1200/1 A, 600-1200/1 A, & 3000/1 A
Current Transformer

Type : Outdoor, oil immersed, live tank, hermetically sealed
Description of the test sample : Refer Sheet 2 of 6
Serial Number : 220643
Number of samples tested : One

Date(s) of test (s) : 20 September, 2022

CPRI Sample code Number (s) : HVD22S0707

Particulars of tests conducted : Temperature-rise test

Test in accordance with Standard / specification : Subclause 7.2.2 of IEC 61869-2: 2012 & IEC 61869-1:2007

Sampling plan : Not applicable

Customer's requirement : Test need to be conducted at rated continuous thermal
current of 1440A

Deviations if any : Nil

Name of the witnessing persons
Customer's representative : Mr. Yogesh Warghade, Design - Executive.
Other than customer's representative : None

Test subcontracted with address of the laboratory : None

Documents constituting this report (In words)
Number of Sheet(s) : Six
Number of Oscillogram(s) : Nil
Number of Graph(s) : Nil
Number of Photograph(s) : One
Number of Test Circuit Diagram(s) : Nil
Number of Drawing(s) : Two


(S. Arjuna Rao)
Test Engineer




(Swaraj Kumar Das)
Head of the Division
Reviewed and Authorized by

CENTRAL POWER RESEARCH INSTITUTE
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DESCRIPTION OF SAMPLE TESTED
(As assigned by the manufacturer)

Test sample	Current Transformer					
Type	Outdoor, oil immersed, live tank, hermetically sealed					
Designation	IOSK : 145/275/650					
Serial number	220643					
Highest voltage for Equipment (U_m)	145 kV					
Insulation level	275/650 kV peak					
Frequency-Hz	50					
Insulation Class	A					
Number of cores	I			II		III
Accuracy class	0.2S	0.2S	0.2S	5P	5P	PX
Rated Output-VA	15	15	15	30	30	---
Instrument Security Factor (FS)	10	10	10	---	---	---
Accuracy limit factor (ALF)	---	---	---	20	20	---
Minimum Knee Point Voltage $E_k(V)$	---	---	---	---	---	600V
Maximum Exciting Current (I_{exc}) at $E_k/2$ (mA)	---	---	---	---	---	10mA
Secondary Winding Resistance (R_a) at 75°C (Ω)	---	---	---	---	---	$\leq 12\Omega$
Rated continuous thermal current	1440 A (1.2 times of 1200A)					
Rated transformation ratio	300-600-1200/1 A			600-1200/1 A		3000/1 A


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SUMMARY OF TESTS CONDUCTED

- | | |
|----------------------------|-------------------------|
| 1. Tests conducted | : Temperature-rise test |
| 2. Rating for which tested | : Refer Sheet 5 of 6 |
| 3. Schedule of tests | : Refer Sheet 5 of 6 |
| 4. Photograph Number(s) | : CPRI BLRSCL22T0985P01 |
| 5. Drawing Number(s) | : Refer Sheet 4 of 6 |


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LIST OF DRAWINGS

Drawing Numbers

The manufacturer has guaranteed that the sample submitted for the test(s) has been manufactured in accordance with the following drawings

Sl. No.	Drawing Number	Sheet Numbers	Revision Numbers
1	413695829 CT42 RS/R0	---	---
2	413695829 CT42 GA/R0	---	---

It is verified that these drawings adequately represent the sample tested. Verification of this drawing by CPRI is limited to dimensional check only wherever possible.


(S. Arjuna Rao)
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TEST RESULTS

TEMPERATURE-RISE TEST

TEST CONDITIONS

Ambient temperature : 26.6 ° C
Test current : 1440 A (1.2 times of the rated current)

External Connections

Primary winding (P1 & P2) : 900 sq. mm copper flexible braid of 2 m long – One number per each terminal
Secondary winding : Terminals [1S1 – (1 – 1S4)] & (2S1 – 2S3) are connected with 15 Ω UPF & 30 Ω UPF respectively. Terminals (3S1 – 3S2) is shorted through copper link.

Test Procedure

: Test current was passed until the steady state condition was reached. The temperature of secondary windings were determined by resistance method & other parts by thermocouple method.

a. Temperature rise of secondary winding (by resistance method):

Winding	Temperature-rise (K)	Limit (K)
1S1 – (1 – 1S4)	5.2	65
2S1 – 2S3	10.7	65
3S1 – 3S2	8.8	65

b. Temperature rise of other parts (by thermocouple method):

Parts	Temperature-rise (K)	Limit (K)
Primary terminal (P1) – T1	26.7	50
Primary terminal (P2) – T2	16.4	50
Secondary terminal (1S1) – T3	0.2	50
Secondary terminal (1) – T4	0.2	50
Secondary terminal (1S4) – T5	0.2	50
Secondary terminal (2S1) – T6	0.2	50
Secondary terminal (2S3) – T7	0.2	50
Secondary terminal (3S1) – T8	0.3	50
Secondary terminal (3S2) – T9	0.2	50
CT Tank Surface – T10	7.5	65
Bellow top – T11	8.5	65
Bellow cover top – T12	3.6	65
Insulator – T13	0.9	--
Bellow side – T17	8.5	65

Conclusion: The sample tested complies with the requirement of subclause 7.2.2 of IEC 61869-2 2012 & IEC 61869-1:2007 for the test conducted.


(S. Arjun Rao)
Test Engineer

ULR-TC5452220SCLT0985F
Discipline: Electrical Testing
Group: Inductors & Transformers

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Sheet 5 of 6

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NOTE

- a) The Test results relate only to the sample(s) tested.
- b) Publication or reproduction of this Test Report in any form other than by complete set of the whole Test Report and in the language written is not permitted without the written consent of CPRI.
- c) Any Corrections / erasure invalidate the Test Report.
- d) Any anomaly / discrepancy in the Test Report should be brought to notice of CPRI within 45 days from the date of issue.
- e) All documents constituting the Test Report are stitched together with a continuous silk thread, the two ends of which have been brought over the front sheet of the Test Report and sealed with a CPRI logo printed paper sticker
- f) NABL has Accredited this laboratory as per ISO/IEC 17025-2017 vide Certificate no.TC-5452 for the tests carried out.



TC-5452


(S.Arjun Rao)
Test Engineer

-----End of Test Report-----

CENTRAL POWER RESEARCH INSTITUTE

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Date: 4 January 2022



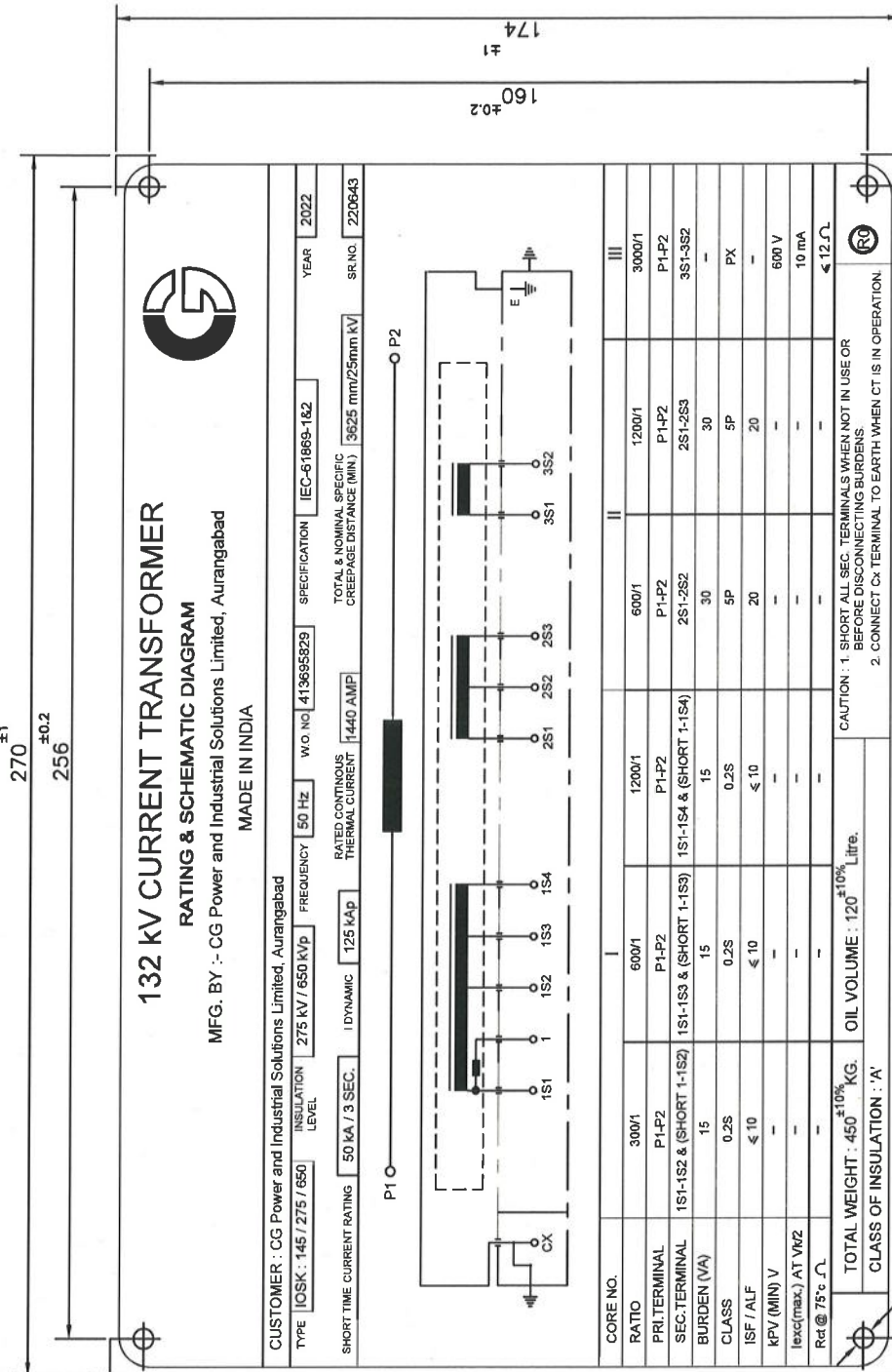
Test arrangement for Temperature Rise test

CPRIBLRSC22T0985P01


(S. Arjuna Rao)
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परीक्षण अभियंता / Test Engineer
ल.प. प्रयोगशाला / S. C. LAB
सी. पी. आर. आई. / CPRI
बैंगलूरु / Bengaluru

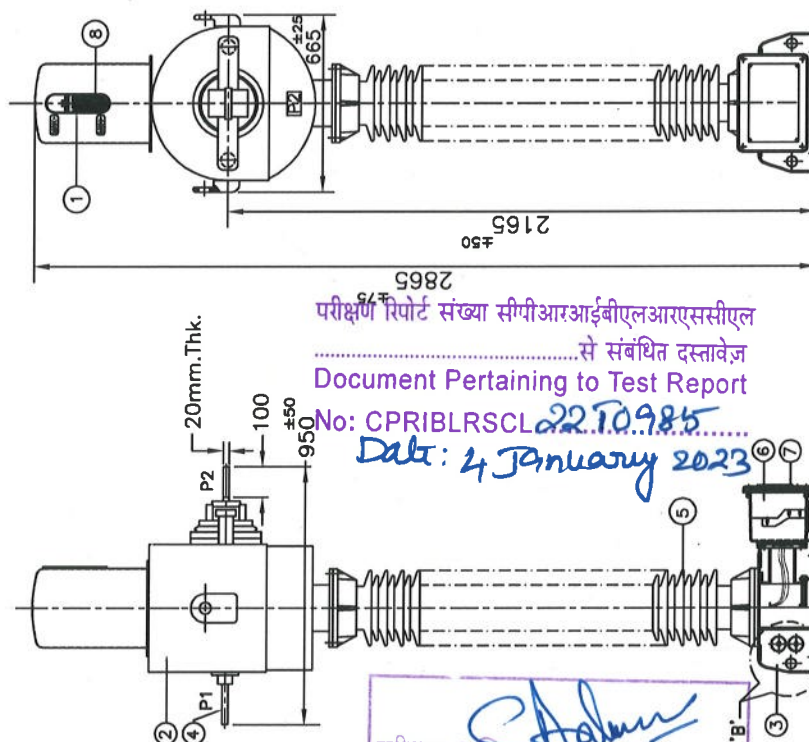
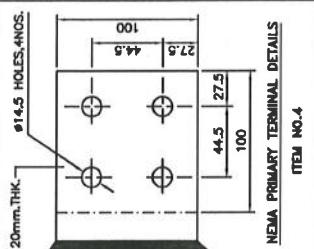
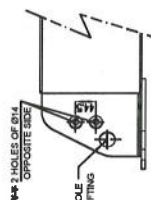
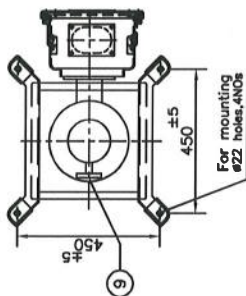


के.वि.अ.सं. द्वारा उस रेखाचित्र का सत्यापन जहाँ
जहाँ भी संग्रह हो शिर्षक विमीन जाँच सक ही समित है।
THE VERIFICATION OF THIS DRAWING
BY CPRI IS LIMITED TO DIMENSIONAL
CHECKS ONLY WHEREVER POSSIBLE

Ø4.5 Holes, 4Nos.
MATERIAL : ALUMINIUM ANODISED

[illegible]

IF IN DOUBT ASK



IF IN DOUBT ASK

परीक्षण रिपोर्ट संख्या सीपीआरआईबीएलआरएससीएल
..... से संबंधित दस्तावेज़
Document Pertaining to Test Report
No: CPRIBLRSL 2210985
Date: 4 January 2023

NOTE : PLEASE REFER INSTRUCTION MANUAL FOR HANDLING & TRANSPORTATION OF CT.

[illegible]

CG Power and Industrial Solutions Limited, Aurangabad

ORG.NO:-413695829 CT42 GA/RO