

100 KVA  
100/5/4  
Temp. Rise

सी पी आर आई  
भारत

CPRI  
INDIA

परीक्षण रिपोर्ट  
TEST REPORT



**CENTRAL POWER RESEARCH INSTITUTE**  
(Member of STL)



**CPRI**

**TEST REPORT**

Test Report Number : 2016/STL/846 Dated : **31 AUG 2016**

Name and Address of the Customer : M/s Confidence Electric Limited,  
Unique Trade Center (UTC), Level-7,08,  
Panthapath, Kawranbazar,  
Dhaka, Bangladesh.

Name and Address of the Manufacturer : M/s Confidence Electric Limited,  
Barabo, Sonargaon, Narayanganj,  
Bangladesh.


Particulars of Sample(s) Tested : 100 kVA, 11/0.415 kV, 3 Phase, Distribution Transformer

Condition of sample(s) on receipt : New  
Type : Outdoor Oil Immersed  
Designation : Conservator Type  
Serial Number(s) : 100/S/4  
Number of Sample(s) Tested : One  
CPRI sample code number(s) : STDSSTL16S0526  
Sealing of the sample, if any : No.  
Particulars of test(s) conducted : Temperature Rise Test

Date(s) of Test(s) : 29/07/2016  
Test(s) in accordance with Standard/specification : Cl.:7.0 of IEC: 60076-2, 2011.  
Sampling Plan : NIL  
Customer's Requirement : NIL  
Deviations, if any : NIL

**Name of the witnessing persons**  
Customer's Representatives : 1) Md. Zahedul Islam, DGM  
2) Md. Saiful Islam, Sr. Manager  
Other than Customer's Representatives : NIL  
Test subcontracted with name and address of the laboratory : NONE

**Documents constituting this report (in words)**  
No. of Sheet(s) : FIVE  
No. of Oscillogram(s) : NIL  
No. of Graph(s) : NIL  
No. of Photo(s) : NIL  
No. of Test Circuit Diagram(s) : NIL  
No. of drawing(s) : TWO

  
(LEENA H. ROY)  
TEST ENGINEER

  
(SARITA DONGRE)  
JOINT DIRECTOR

SWITCHGEAR TESTING & DEVELOPMENT STATION  
GOVINDPURA, BHOPAL 462026  
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Sheet 1 of 5





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CPRI

TEST REPORT

Test Report Number: 2016/STL/846

Date:

31 AUG 2016

SUMMARY OF TEST

1. Test conducted : Temperature Rise Test .
2. Rating for which tested : The test was conducted by feeding total measured losses of 1765.15 watts at tap No.5 i.e. (No load loss : 239.2 W and load loss at 75°C : 1525.95 W) till the rate of change of top oil temperature rise has fallen below 1K and then current reduced to rated current 5.674 A for 1 hour as per standard.
3. DOCUMENTS CONSTITUTING THIS REPORT :
  - 3.1 Supplementary test report : NIL
  - 3.2 Oscillogram No(s) : NIL
  - 3.3 Drawing of the equipment tested : 1) CEL-DT-3PH-100-S/D1 Sheet 1/4 Rev.01  
2) CEL-DT-3PH-100-S/D1 Sheet 3/4 Rev.01
  - 3.4 Test circuit drawing No(s). : NIL
  - 3.5 Photograph No(s). : NIL

  
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TEST ENGINEER

Sheet 2 of 5



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**CPRI**

**TEST REPORT**

Test Report Number: 2016/STL/846

Date: 31 AUG 2016

DESCRIPTION OF THE SAMPLE TESTED

(As assigned by the manufacturer)

Sample : Distribution Transformer  
 Rated Power (kVA) : 100  
 Rated Voltage HV (Volts) : 11000  
     LV (Volts) : 415  
 Rated Current HV (Amps) : 5.24  
     LV (Amps) : 139.12  
 No. of Phases : Three  
 Insulation level LV (kV rms/kV Peak) : 2.5 / -  
 Insulation level HV (kV rms/kV Peak) : 28 / 75  
 Type of Cooling : ONAN  
 Connection (HV/LV) : Delta/Star  
 Frequency (Hz) : 50  
 % Impedance : 4 [ with  $\pm 10\%$  tolerance ]  
 X/R : -  
 Temperature rise of oil /Winding (K) : 60/65  
 Winding Material : Copper  
 Type of Winding : Spiral- Layer  
 Quantity of Oil (litres) : -  
 Weight of Oil (kgs) : 140  
 Weight of core and winding (kgs) : 325  
 Total weight (Kgs) : 640  
 Vector group : Dyn11  
 Year of Manufacture : 2016  
 Serial Number : 100/S/4

| Tap No | Primary Voltage V | Secondary Voltage V | %Impedance | X/R |
|--------|-------------------|---------------------|------------|-----|
| 1      | 11275             | 415                 | -          | -   |
| 2      | 11000             | 415                 | 4.0        | -   |
| 5      | 10175             | 415                 | -          | -   |

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**CPRI**

**TEST REPORT**

Test Report Number: 2016/STL/846

Date:

31 AUG 2016

SCHEDULE OF TESTS

Test conducted : Temperature rise test  
 Condition of the sample : New  
 Date of test : 29/07/2016  
 Starting time(Hrs.) : 08.47  
 Shut down(Hrs.) : 19.47  
 Test Detail : Test was conducted on measured load loss 1765.15 Watt at tap No. 5 as per standard. After stabilization at 18.47 Hrs, current reduced to rated current 5.674 A as per standard for one hour.

1. Measurement of winding resistance before test at amb. Temp. 28.0°C : H.V. Winding : B - C = 14.4 Ω  
 : L.V. Winding : b - c = 19.8 mΩ

2. Maximum temperature recorded

| Thermocouple locations      | Temperature during total loss (°C) at 18.47 hours | Temperature at shut down (°C) at 19.47 hours |
|-----------------------------|---|--|
| Top oil                     | 68.5  | 67.8   |
| Radiator Top                | 64.0  | 63.3   |
| Radiator Bottom             | 55.1  | 54.4   |
| Average ambient temperature | 30.8  | 30.5   |

Resistance at shut down (Extrapolated from graph) : H.V. Winding : B - C = 17.47 Ω  
 : L.V. Winding : b - c = 23.82 mΩ

The temperature rises of H.V. winding, L.V. winding and Oil : H.V. Winding : B - C = 53.95 K  
 : L.V. Winding : b - c = 51.27 K  
 Oil : 37.7K

Observations : The temperature rise of winding / oil were within the limits as specified in the standard.

**CONCLUSION** : The test results indicate that the sample tested complies with the requirement of the CI.:7.0 of IEC: 60076-2, 2011.

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**CPRI**

**TEST REPORT**

**Test Report Number: 2016/STL/846**

**Date: 31 AUG 2016**

**NOTE**

- a) The test results relate only to the item(s) tested.
- b) Publication or reproduction of the test report /Certificate in any form other than by complete set of the whole test report /Certificate and in the language written is not permitted without the written consent of CPRI.
- c) Any Corrections/erasure invalidates the test Report/Certificate.
- d) NABL has Accredited this laboratory as per ISO 17025-2005 standard, vide certificate no. T-0011 for the tests carried out.
- e) Any anomaly/discrepancy in the test report /Certificate should be brought to the notice of CPRI within 45 days from the date of issue.
- f) The verification of the sample drawings by CPRI is limited to dimensional checks only wherever possible.
- g) CPRI Issues two kinds of documents:

Test Report:

The test report is issued when the sample is tested for specific test required by the customer either in accordance with National/International standards or as per customer's requirements but no certification on the performance of the sample tested. The test report will contain the record of the values of test parameters as obtained during testing, the physical condition of the apparatus during testing, the physical condition of the apparatus during/after the test(s), copy(ies) of Oscillogram(s), record of supplementary test(s) if any conducted but no certification on the performance of the apparatus tested.

Test Certificate:

The test certificate is issued on request and payment of the prescribed charges only when the apparatus of particular type and rating has satisfactorily passed all the specified tests in compliance with condition stipulated in a published National/International Standards.

- h) All Documents constituting this test report/certificate are stitched together with a Continuous silk thread/silk ribbon, the two ends of which have been brought over the front sheet of this test report/certificate and sealed with a CPRI logo printed paper sticker/embossed.

*Leena H. Roy*  
(LEENA H. ROY)  
TEST ENGINEER









MIN. AIR CLEARANCE

|       |    |     |
|-------|----|-----|
|       | LV | HV  |
| Ph-Ph | 60 | 110 |
| Ph-E  | 60 | 110 |

\* NOT PROVIDED DURING TEST.

**TANK PLATE THICKNESS :**

MATERIAL : M.S. SHEET

TOP COVER : 4 mm

SIDE PLATE : 3 mm

BOTTOM PLATE : 3 mm

| SL. NO. | NAME OF ITEMS                          | QTY |
|---------|--|-----|
| 1       | HV CONNECTOR                           | 3   |
| 2       | HV BUSHING (12 KV / 250 A)             | 3   |
| 3       | DIAL TYPE TEMPERATURE METER            | 1   |
| 4       | TANK LIFTING HOOK                      | 4   |
| 5       | PRESSED STEEL RADIATOR (4 FINS / RAD.) | 2   |
| 6       | TANK STIFFNER                          | 1   |
| 7       | TANK DRAIN PLUG                        | 1   |
| 8       | TANK FOOT PLATE                        | 2   |
| 9       | RATING AND DIAGRAM PLATE               | 1   |
| 10      | CONSERVATOR FILLING PLUG               | 1   |
| 11      | CONSERVATOR OIL LEVEL GAUGE            | 1   |
| 12      | LV CONNECTOR                           | 4   |
| 13      | LV BUSHING (11 KV / 250 A)             | 4   |
| 14      | EARTHING LUG                           | 1   |
| 15      | SILICA JEL BREATHER                    | 1   |
| 16      | TAP CHANGER NOB                        | 1   |
| 17      | CCA LIFTING LUG                        | 2   |
| 18      | THERMOMETER POCKET                     | 1   |

**WEIGHT :**

CCA = 350 KG

OIL = 140 KG

TANK AND FITTINGS = 150 KG

TOTAL = 640 KG

**OVERALL DIMENSION :**

LENGTH (L) = 1250

BREATH (B) = 740

HEIGHT (H) = 1270

|  |  |                   |
|--|--|-------------------|
| DRAWN  | DELWAR HOSSAIN (ASSISTANT MANAGER)         | SIGNATURE         |
| CHECKED  | MD. ZAHEDUL ISLAM (DEPUTY GENERAL MANAGER) |                   |
| APPROVED   | MD. MOHSIN ALI (EXECUTIVE DIRECTOR)        |                   |
| SCALE : NTS  | DIMENSION : mm                             | DATE : 07.06.2016 |
| DRG. NO. : CEL-DT-3PH-100-S/D1   |  | SHEET : 1/4       |
| <b>TITLE : GENERAL ASSEMBLY (GA) DRAWING OF 100 KVA, 3-PH, 11/10.415 KV, DIST. TRANSFORMER</b> |  |                   |

**Confidence electric ltd.**

FACTORY: NAYAPIUR, BARABO, SOMARGAON, NARAYANGANJ, BANGLADESH

HEAD OFFICE: UNIQUE TRADE CENTER (UTC), LEVEL-7, 08, PANTHAPATH, KAWRAN BAZAR, DHAKA-1215, BANGLADESH.

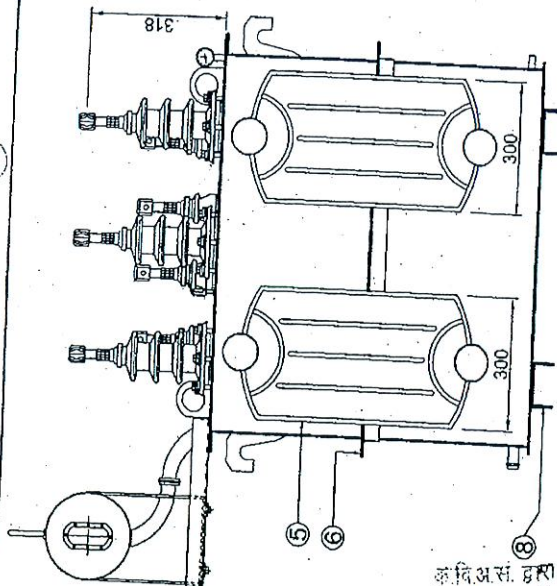


FIG: FRONT VIEW (HV SIDE)

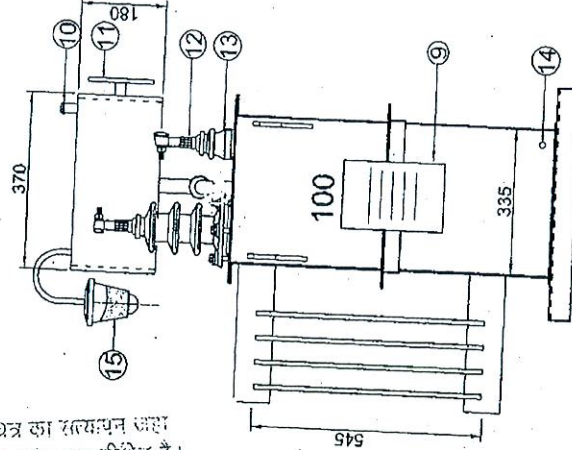


FIG: SIDE VIEW

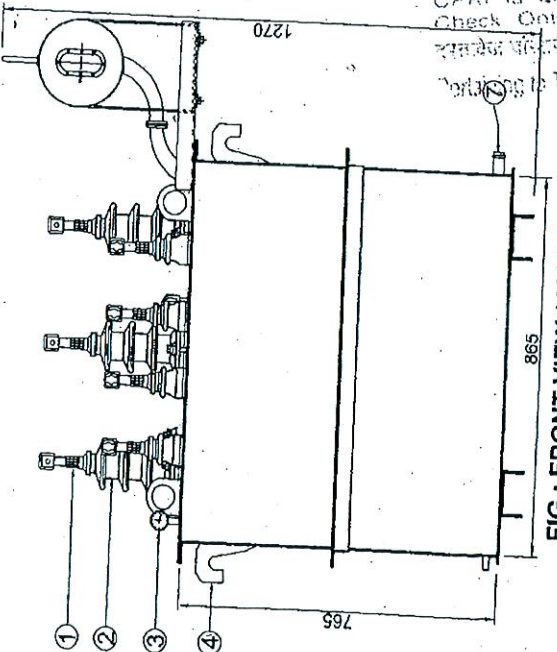


FIG: FRONT VIEW (LV SIDE)

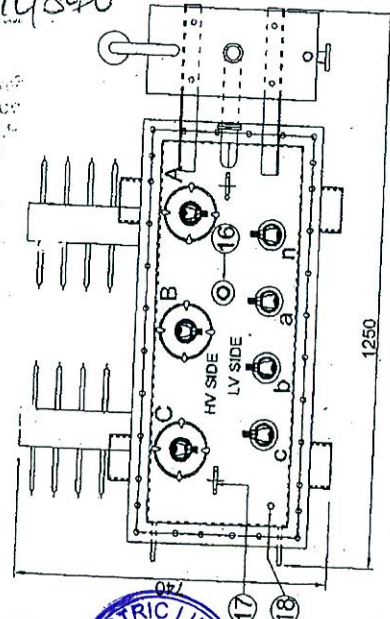


FIG: TOP VIEW

कॉन्फिडेंस इलेक्ट्रिक द्वारा इस रेखाचित्र का सत्यापन जहां तक भी संभव है सिर्फ विमीय तथ्य तक सीमित है।  
 The Verification of this Drawing by CPRI is Limited to Dimensional Check Only Whenever Possible.  
 सत्यापन रिपोर्ट नं. 2016/12/18/46

Confidence Electric Limited  
 Engineering Office  
 10, Panthapath, Dhaka-1215, Bangladesh

NOTE: ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED. WEIGHT AND DIMENSION ARE SUBJECT TO ±5% TOLERANCE



REV.01





## केन्द्रीय विद्युत अनुसंधान संस्थान

(विद्युत मंत्रालय, भारत सरकार के अधीन एक स्वायत्त सोसायटी)

### Central Power Research Institute

(An Autonomous Society under the Ministry of Power, Govt. of India)

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Website : <http://cpri.in>





# परीक्षण रिपोर्ट TEST REPORT

**केन्द्रीय विद्युत अनुसंधान संस्थान**  
( विद्युत पत्रालय, भारत सरकार के अधीन एक स्वायत्त सोसायटी )  
**CENTRAL POWER RESEARCH INSTITUTE**  
(An Autonomous Society under the Ministry of Power, Govt of India)

एस टी एल के सदस्य  
Member of STL

**स्विचगियर परीक्षण तथा विकास केन्द्र**  
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**CENTRAL POWER RESEARCH INSTITUTE  
(MEMBER OF STL)**




**CPRI**

**TEST REPORT**

|  |   |                   |
|--|---|-------------------|
| Test Report Number   | S2160952  | Date: 31 AUG 2016 |
| Name & address of the customer   | M/s Confidence Electric Ltd.,<br>Unique Trade Center (UTC),<br>Level-7, 08, Panthapath, Kawran Bazar,<br>Dhaka - 1215, Bangladesh |                   |
| Name & address of the Manufacturer   | M/s Confidence Electric Ltd.,<br>Nayapur, Barabo, Sonargaon,<br>Narayanganj, Bangladesh   |                   |
| Particulars of sample tested<br>Condition of sample on Receipt   | 100 kVA, 11/0.415 kV, 3Ph, Distribution Transformer<br>New  |                   |
| Type<br>Designation<br>Serial number<br>Number of samples tested<br>Date(s) of Test(s)<br>CPRI sample code no.   | Outdoor, Oil immersed<br>Conservator Type<br>100/S/4<br>One<br>19 <sup>th</sup> July, 2016<br>STDSSTL16S0526                      |                   |
| Particulars of tests conducted<br>Test in accordance with standard/specification   | Ability to withstand the dynamic effects of short-circuit.<br>Clause 4.2 of IEC:60076-5, 2006                                     |                   |
| Sampling plan<br>Customer's requirement<br>Deviations if any   | Not applicable<br>The guaranteed losses are specified at principal tap.<br>Nil  |                   |
| Name of the Witnessing persons<br>Customer's representative<br>Other than customer's representatives<br>Test subcontracted with address of the laboratory                                    | Md. Zahedul Islam (DGM) & Md. Saiful Islam (Sr. Manager)<br>Nil<br>None   |                   |
| Documents constituting this report (in words)<br>Number of sheets<br>Number of oscillograms<br>Number of graphs<br>Number of photos<br>Number of Test circuit diagrams<br>Number of drawings | Eight<br>Nine<br>Nil<br>One<br>One<br>Four  |                   |

  
(HIMANGSHU ROY)  
TEST ENGINEER



  
(SUMBUL MUNSHI)  
JOINT DIRECTOR

Sheet 1 of 8

**CENTRAL POWER RESEARCH INSTITUTE  
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**TEST REPORT**

**CPRI**

Test Report Number S2160952

Date: 31 AUG 2016

**Summary of test**

**Test conducted** Ability to withstand the dynamic effects of short-circuit.

**Rating for which tested**

| Tap position | Required Isc Peak (kA) | Required Isc RMS (kA) | Voltage (V) |
|--------------|------------------------|-----------------------|-------------|
| Normal (2)   | 6.1441 ± 5%            | 3.2706 ± 10%          | 11000       |
| Highest (1)  | 6.1308 ± 5%            | 3.2437 ± 10%          | 11275       |
| Lowest (5)   | 6.1881 ± 5%            | 3.3559 ± 10%          | 10175       |

**Documents constituting this report**

Oscillogram numbers S2160952.S02, S2160952.S03, S2160952.S04, S2160952.S05, S2160952.S06, S2160952.S07, S2160952.S08, S2160952.S09 & S2160952.S10

Photograph numbers P-1

Test circuit diagram number OLTS/TCD-TR-01

Drawing numbers  
 CEL-DT-3PH-100-S/D1 Rev.01 Sheet 1 of 4,  
 CEL-DT-3PH-100-S/D1 Rev.01 Sheet 2 of 4,  
 CEL-DT-3PH-100-S/D1 Rev.01 Sheet 3 of 4 &  
 CEL-DT-3PH-100-S/D1 Rev.01 Sheet 4 of 4

  
TEST ENGINEER



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**CPRI**

**TEST REPORT**

Test Report Number S2160952

Date : 31 AUG 2016

**Ratings assigned by manufacturer**

|                                 |   |
|---------------------------------|---|
| Test sample                     | 100 kVA, 11/0.415 kV, 3Ph, Distribution Transformer |
| Type                            | Outdoor, Oil immersed                               |
| Designation                     | Conservator Type                                    |
| Serial Number                   | 100/S/4   |
| Rated power                     | 100 kVA   |
| Rated primary voltage           | 11000 Volt.   |
| Rated secondary voltage         | 415 Volt.   |
| Rated primary current           | 5.24 Amp.   |
| Rated secondary current         | 139.12 Amp.   |
| Number of phases                | Three   |
| Rated frequency                 | 50 Hz   |
| Vector group                    | Dyn 11  |
| Impedance volts                 | 4% [with $\pm 10\%$ tolerance]                      |
| X/R ratio                       | -   |
| Type of cooling                 | ONAN  |
| Temperature rise of oil/winding | 60/65 °C  |
| Quantity of oil                 | -   |
| Weight of oil                   | 140 Kg  |
| Weight of core and winding      | 325 Kg  |
| Total weight                    | 640 Kg  |
| Year of manufacture             | 2016  |
| Winding material                | Copper  |
| Core material                   | CRGO  |
| Type of winding                 | Circular  |
| Guaranteed load loss            | 1635 Watt   |
| Guaranteed No load loss         | 245 Watt  |

Tap details 5 taps

| Tap         | 1     | 2     | 3     | 4     | 5     |
|-------------|-------|-------|-------|-------|-------|
| HV (V)      | 11275 | 11000 | 10725 | 10450 | 10175 |
| LV (V)      | 415   | 415   | 415   | 415   | 415   |
| % Impedance | -     | 4 %   | -     | -     | -     |
| X/R ratio   | -     | -     | -     | -     | -     |



TEST ENGINEER

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**TEST REPORT**

**CPRI**

Test Report Number S2160952

Date: 31 AUG 2016

**Routine test**

**Measurement of winding resistance at principal tap**

| Limbs | Before short-circuit test          |                                 | After short-circuit test           |                                 |
|-------|------------------------------------|---------------------------------|------------------------------------|---------------------------------|
|       | Secondary winding resistance in mΩ | Primary winding resistance in Ω | Secondary winding resistance in mΩ | Primary winding resistance in Ω |
|       | Average oil temperature : 32.00 °C |                                 | Average oil temperature : 32.00 °C |                                 |
| UV    | 21.80                              | 16.00                           | 19.92                              | 15.73                           |
| VW    | 21.90                              | 15.90                           | 19.87                              | 15.71                           |
| WU    | 21.90                              | 16.00                           | 19.99                              | 15.78                           |

**Measurement of winding resistance at highest tap**

| Limbs | Before short-circuit test          |                                 | After short-circuit test           |                                 |
|-------|------------------------------------|---------------------------------|------------------------------------|---------------------------------|
|       | Secondary winding resistance in mΩ | Primary winding resistance in Ω | Secondary winding resistance in mΩ | Primary winding resistance in Ω |
|       | Average oil temperature : 32.00 °C |                                 | Average oil temperature : 32.00 °C |                                 |
| UV    | 21.80                              | 16.40                           | 19.92                              | 16.17                           |
| VW    | 21.90                              | 16.40                           | 19.87                              | 16.16                           |
| WU    | 21.90                              | 16.40                           | 19.99                              | 16.21                           |

**Measurement of winding resistance at lowest tap**

| Limbs | Before short-circuit test          |                                 | After short-circuit test           |                                 |
|-------|------------------------------------|---------------------------------|------------------------------------|---------------------------------|
|       | Secondary winding resistance in mΩ | Primary winding resistance in Ω | Secondary winding resistance in mΩ | Primary winding resistance in Ω |
|       | Average oil temperature : 32.00 °C |                                 | Average oil temperature : 32.00 °C |                                 |
| UV    | 21.80                              | 14.50                           | 19.92                              | 14.41                           |
| VW    | 21.90                              | 14.50                           | 19.87                              | 14.40                           |
| WU    | 21.90                              | 14.60                           | 19.99                              | 14.46                           |

**Measurement of voltage ratio before and after short-circuit test**

| Tap | UV     |        | VW     |        | WU     |        |
|-----|--------|--------|--------|--------|--------|--------|
|     | BT     | AT     | BT     | AT     | BT     | AT     |
| 1   | 46.999 | 47.071 | 47.049 | 47.041 | 47.055 | 47.071 |
| 2   | 45.859 | 45.881 | 45.885 | 45.849 | 45.901 | 45.863 |
| 3   | 44.719 | 44.709 | 44.721 | 44.711 | 44.739 | 44.705 |
| 4   | 43.603 | 43.571 | 43.591 | 43.589 | 43.579 | 43.593 |
| 5   | 42.453 | 42.431 | 42.445 | 42.409 | 42.443 | 42.419 |

Measurement of vector relationship before and after SCT:

Dyn 11



FIRST ENGINEER

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**CPRI**

**TEST REPORT**

Test Report Number S2160952

Date : 31 AUG 2016

**Routine test (contd.)**

**Measurement of impedance voltage and load loss at principal tap**

|  | Applied voltage in volts             |                               |                           | Current in Amps   |                |                | Frequency (Hz) |
|--|--------------------------------------|-------------------------------|---------------------------|---|----------------|----------------|----------------|
|  | V <sub>uv</sub>                      | V <sub>vw</sub>               | V <sub>wu</sub>           | I <sub>u</sub>  | I <sub>v</sub> | I <sub>w</sub> | Hz             |
| BT   | 457.20                               | 455.10                        | 461.20                    | 5.14  | 5.27           | 5.28           | 49.90          |
| AT   | 459.00                               | 456.90                        | 461.70                    | 5.18  | 5.29           | 5.29           | 49.97          |
| Average oil temperature before short-circuit test :<br>32.00°C |                                      |                               |                           | Average oil temperature after short-circuit test :<br>32.00°C |                |                |                |
|  | Load loss (Watts) at oil temperature | %Z at average oil temperature | Load loss at 75°C (Watts) | %Z at 75°C and 50 Hz  |                |                |                |
| BT   | 1308.15                              | 4.1771                        | 1514.79                   | 4.2538  |                |                |                |
| AT   | 1283.18                              | 4.1709                        | 1473.59                   | 4.2356  |                |                |                |

**Measurement of impedance voltage and load loss at highest tap.**

|  | Applied voltage in volts             |                               |                           | Current in Amps   |                |                | Frequency (Hz) |
|--|--------------------------------------|-------------------------------|---------------------------|---|----------------|----------------|----------------|
|  | V <sub>uv</sub>                      | V <sub>vw</sub>               | V <sub>wu</sub>           | I <sub>u</sub>  | I <sub>v</sub> | I <sub>w</sub> | Hz             |
| BT   | 474.40                               | 472.70                        | 477.80                    | 5.05  | 5.15           | 5.15           | 49.92          |
| AT   | 474.20                               | 472.30                        | 475.40                    | 5.05  | 5.15           | 5.15           | 49.97          |
| Average oil temperature before short-circuit test :<br>32.00°C |                                      |                               |                           | Average oil temperature after short-circuit test :<br>32.00°C |                |                |                |
|  | Load loss (Watts) at oil temperature | %Z at average oil temperature | Load loss at 75°C (Watts) | %Z at 75°C and 50 Hz  |                |                |                |
| BT   | 1292.87                              | 4.2159                        | 1497.21                   | 4.2891  |                |                |                |
| AT   | 1268.13                              | 4.2071                        | 1456.42                   | 4.2699  |                |                |                |

**Measurement of impedance voltage and load loss at lowest tap.**

|  | Applied voltage in volts             |                               |                           | Current in Amps   |                |                | Frequency (Hz) |
|--|--------------------------------------|-------------------------------|---------------------------|---|----------------|----------------|----------------|
|  | V <sub>uv</sub>                      | V <sub>vw</sub>               | V <sub>wu</sub>           | I <sub>u</sub>  | I <sub>v</sub> | I <sub>w</sub> | Hz             |
| BT   | 413.50                               | 410.50                        | 416.30                    | 5.57  | 5.73           | 5.71           | 49.95          |
| AT   | 411.40                               | 409.70                        | 414.10                    | 5.58  | 5.71           | 5.71           | 49.97          |
| Average oil temperature before short-circuit test :<br>32.00°C |                                      |                               |                           | Average oil temperature after short-circuit test :<br>32.00°C |                |                |                |
|  | Load loss (Watts) at oil temperature | %Z at average oil temperature | Load loss at 75°C (Watts) | %Z at 75°C and 50 Hz  |                |                |                |
| BT   | 1358.89                              | 4.0664                        | 1571.12                   | 4.1457  |                |                |                |
| AT   | 1327.90                              | 4.0520                        | 1525.95                   | 4.1233  |                |                |                |

  
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**CPRI**

**TEST REPORT**

Test Report Number S2160952

Date :

31 AUG 2016

**Routine test (contd.)**

**Measurement of no-load loss and no-load current** (measured from LV side)

|    | Voltage (Volts) |        |        | Freq.<br>(Hz) | No-load current in amps |      |      |          | No-load loss<br>(Watts) |
|----|-----------------|--------|--------|---------------|-------------------------|------|------|----------|-------------------------|
|    | Vuv             | Vvw    | Vwu    |               | Iu                      | Iv   | Iw   | Iaverage |                         |
| BT | 416.20          | 411.30 | 418.10 | 50.00         | 1.94                    | 1.52 | 1.99 | 1.817    | 239.40                  |
| AT | 415.90          | 410.90 | 419.10 | 50.00         | 1.92                    | 1.52 | 2.02 | 1.820    | 239.20                  |

BT: Before short-circuit test

AT: After short-circuit test

SCT: Short-circuit test

**Measurement of insulation resistance in MOhms at 1000 Volts**

| Insulation resistance   | Before short-circuit test         | After short-circuit test |
|---|-----------------------------------|--------------------------|
|   | Average oil temperature: 32.00 °C |                          |
| Insulation resistance between<br>(a) primary and<br>(b) secondary winding, core and tank<br>connected together and earthed. | > 990                             | > 990                    |
| Insulation resistance between<br>(a) secondary and<br>(b) primary winding, core and tank<br>connected together and earthed. | > 990                             | > 990                    |
| Insulation resistance between<br>(a) primary and<br>(b) secondary   | > 990                             | > 990                    |

**Dielectric tests**

| A. Separate source power frequency voltage withstand test for 60 seconds                     |                           |                |                          |             |
|--|---------------------------|----------------|--------------------------|-------------|
| Connections  | Before short-circuit test |                | After short-circuit test |             |
|  | RMS Voltage<br>(kV)       | Observation    | RMS Voltage<br>(kV)      | Observation |
| (a) primary winding and<br>(b) secondary winding and tank<br>connected together and earthed. | 28.0                      | Withstood      | 28.0                     | Withstood   |
| (a) secondary winding and<br>(b) primary winding and tank<br>connected together and earthed. | 3.0                       | Withstood      | 3.0                      | Withstood   |
| B. Induced overvoltage withstand test for 60 seconds   |                           |                |                          |             |
|  | Voltage (Volts)           | Frequency (Hz) | Observation              |             |
| BT   | 830.00                    | 100.00         | Withstood                |             |
| AT   | 830.00                    | 100.00         | Withstood                |             |

BT: Before short-circuit test

AT: After short-circuit test

  
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**CPRI**

Test Report Number : S2160952

Date : 31 AUG 2016

**Ability to withstand the dynamic effects of short-circuit**

**Test conditions :**

Condition of the sample : After routine tests.  
No. of phases : Three  
Source frequency : 50 Hz.  
HV terminals : Connected to source as per test circuit diagram no. OLTS/TCD-TR-01  
LV terminals : Short circuited and earthed through shunts.  
Type of short circuit : Preset short circuit.

**Short-circuit test results**

| Oscillogram                                       | Peak (kA) | Current RMS (kA) |      |      | Voltage RMS (kV) |                 |                 | Duration secs | % change in %X |
|---|-----------|------------------|------|------|------------------|-----------------|-----------------|---------------|----------------|
|   |           | U                | V    | W    | V <sub>uv</sub>  | V <sub>vw</sub> | V <sub>wu</sub> |               |                |
| <b>Dynamic ability to withstand short-circuit</b> |           |                  |      |      |                  |                 |                 |               |                |
| Maximum peak on limb 2U. (Lowest tap-5)           |           |                  |      |      |                  |                 |                 |               |                |
| S2160952.S02                                      | 6.24      | 3.3              | 3.3  | 3.3  | 10.20            | 10.20           | 10.20           | 0.50          | -0.484         |
| S2160952.S03                                      | 6.24      | 3.3              | 3.3  | 3.3  | 10.20            | 10.20           | 10.20           | 0.50          | -0.280         |
| S2160952.S04                                      | 6.24      | 3.3              | 3.3  | 3.3  | 10.20            | 10.20           | 10.20           | 0.50          | -0.382         |
| Maximum peak on limb 2V. (Normal tap-2)           |           |                  |      |      |                  |                 |                 |               |                |
| S2160952.S05                                      | 6.14      | 3.27             | 3.27 | 3.27 | 11.00            | 11.00           | 11.00           | 0.50          | -0.686         |
| S2160952.S06                                      | 6.14      | 3.27             | 3.27 | 3.27 | 11.00            | 11.00           | 11.00           | 0.50          | -0.661         |
| S2160952.S07                                      | 6.14      | 3.27             | 3.27 | 3.27 | 11.00            | 11.00           | 11.00           | 0.50          | -0.637         |
| Maximum peak on limb 2W. (Highest tap-1)          |           |                  |      |      |                  |                 |                 |               |                |
| S2160952.S08                                      | 6.27      | 3.22             | 3.22 | 3.22 | 11.30            | 11.30           | 11.30           | 0.50          | -0.073         |
| S2160952.S09                                      | 6.27      | 3.22             | 3.22 | 3.22 | 11.30            | 11.30           | 11.30           | 0.50          | -0.073         |
| S2160952.S10                                      | 6.27      | 3.22             | 3.22 | 3.22 | 11.30            | 11.30           | 11.30           | 0.50          | 0.073          |
| Observation: No abnormality                       |           |                  |      |      |                  |                 |                 |               |                |

Negative value of % change in % reactance indicates decrease in reactance

**Reactance values before and after short-circuit test**

| Tap Position | % reactance before SCT | % reactance after SCT | % change in % reactance after SCT |
|--------------|------------------------|-----------------------|-----------------------------------|
| Highest (1)  | 4.0990                 | 4.1020                | 0.073                             |
| Normal (2)   | 4.0820                 | 4.0560                | -0.637                            |
| Lowest (5)   | 3.9240                 | 3.9260                | 0.051                             |

SCT: Short-circuit test

**Observations after test :** Percentage change in percentage reactance was within the tolerance specified by the standard.

Routine tests were carried out before and after the short-circuit test and results found within limits as per standard.

Transformer was untanked and inspected, core and winding assembly and end blocks found intact.

**Conclusion :** The test results indicate that the sample tested complies with the requirement of clause 4.2 of the standard.

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Date:

31 AUG 2016

**Note**

- a) The test results relate only to the item(s) tested.
- b) Publication or reproduction of this test report/ certificate in any form other than by complete set of the whole report and in the language written, is not permitted without the written consent of CPRI.
- c) Any correction/erasure invalidates this test report/certificate.
- d) NABL has Accredited this laboratory as per ISO 17025-2005 standard, vide certificate no.T-0011 for the tests carried out.
- e) The verification of the sample drawings by CPRI is limited to dimensional checks only wherever possible.
- f) Any anomaly/discrepancy in the test report/Certificate should be brought to the notice of CPRI within 45 days from the date of issue.
- g) CPRI issues two kinds of documents:

Test Report:

The test report will contain the record of the values of test parameters as obtained during testing, the physical condition of the apparatus during testing, the physical condition of the apparatus during/after the test(s), copy(ies) of Oscillogram(s), record of supplementary test(s) if any conducted but no certification on the performance of the apparatus tested

Type test Certificate:

The test certificate is issued, on request and payment of the prescribed charges only when the apparatus of particular type and rating has satisfactorily passed all the specified tests in compliance with condition stipulated in a published National/International Standards.

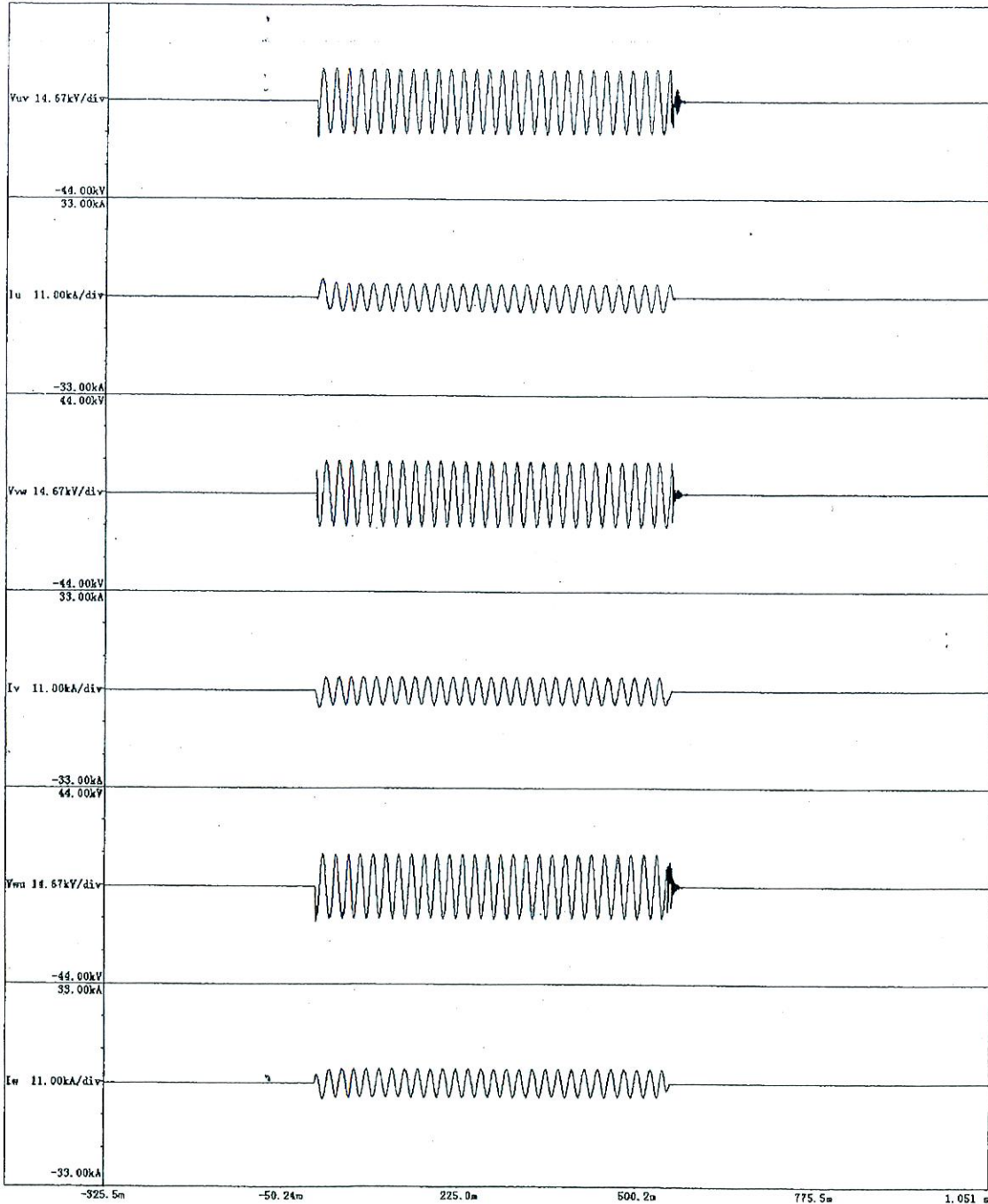
- h) All Documents constituting this test report/certificate are stitched together with a continuous silk thread/ribbon, the two ends of which have been brought over the front sheet of this test report/certificate and sealed with a CPRI logo printed paper sticker/embossed.

  
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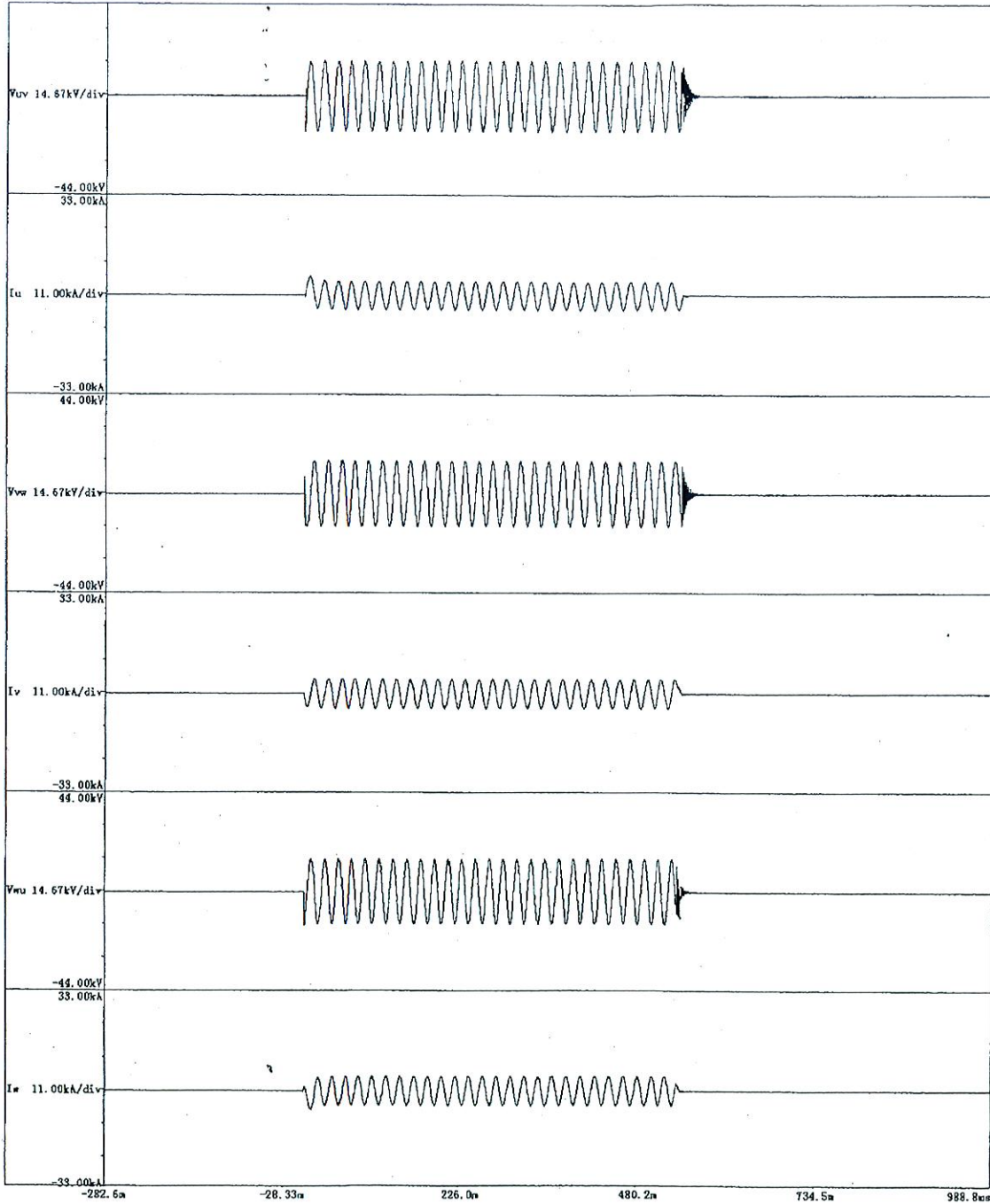
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S2160952.S02



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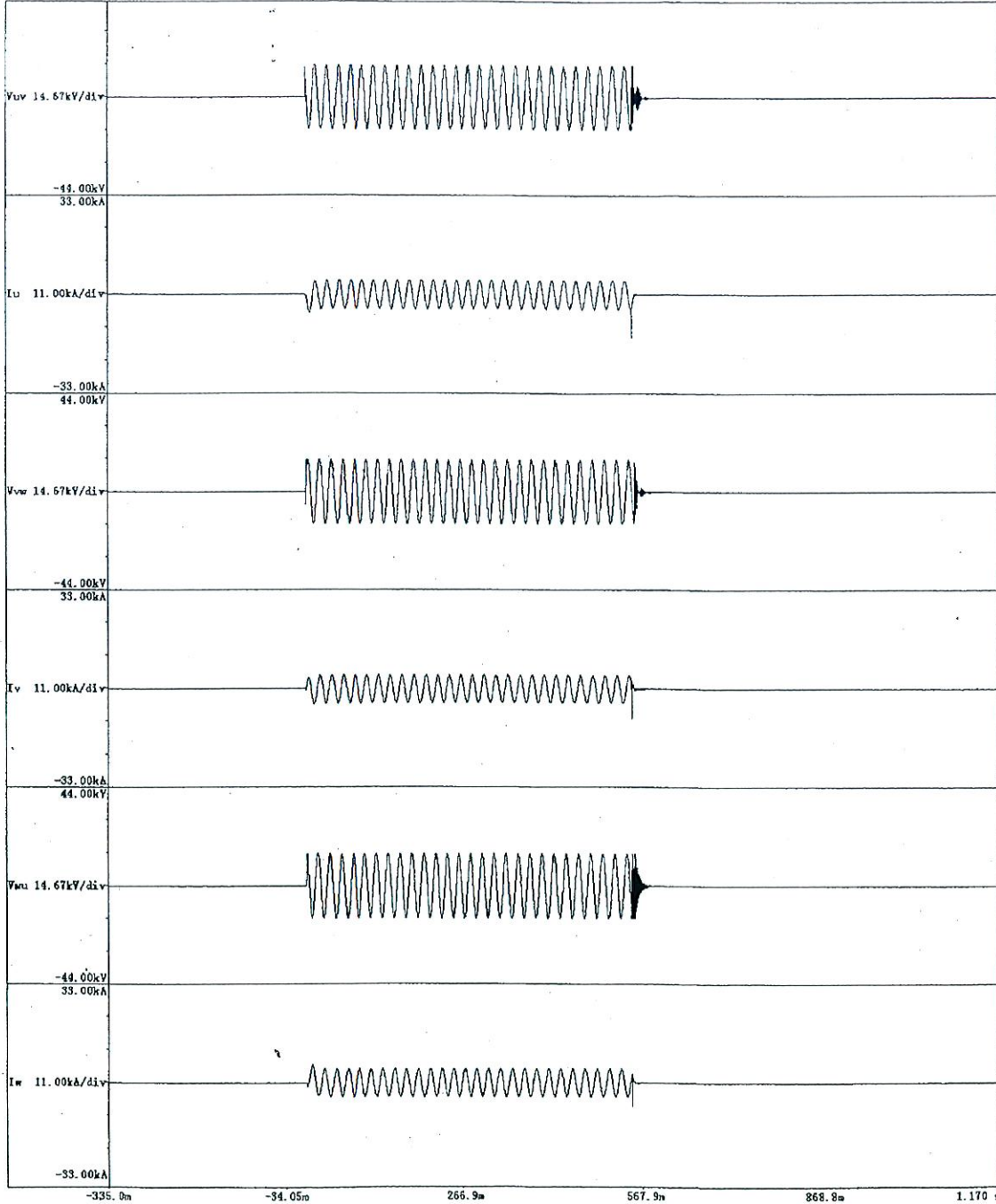
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S2160952.S03





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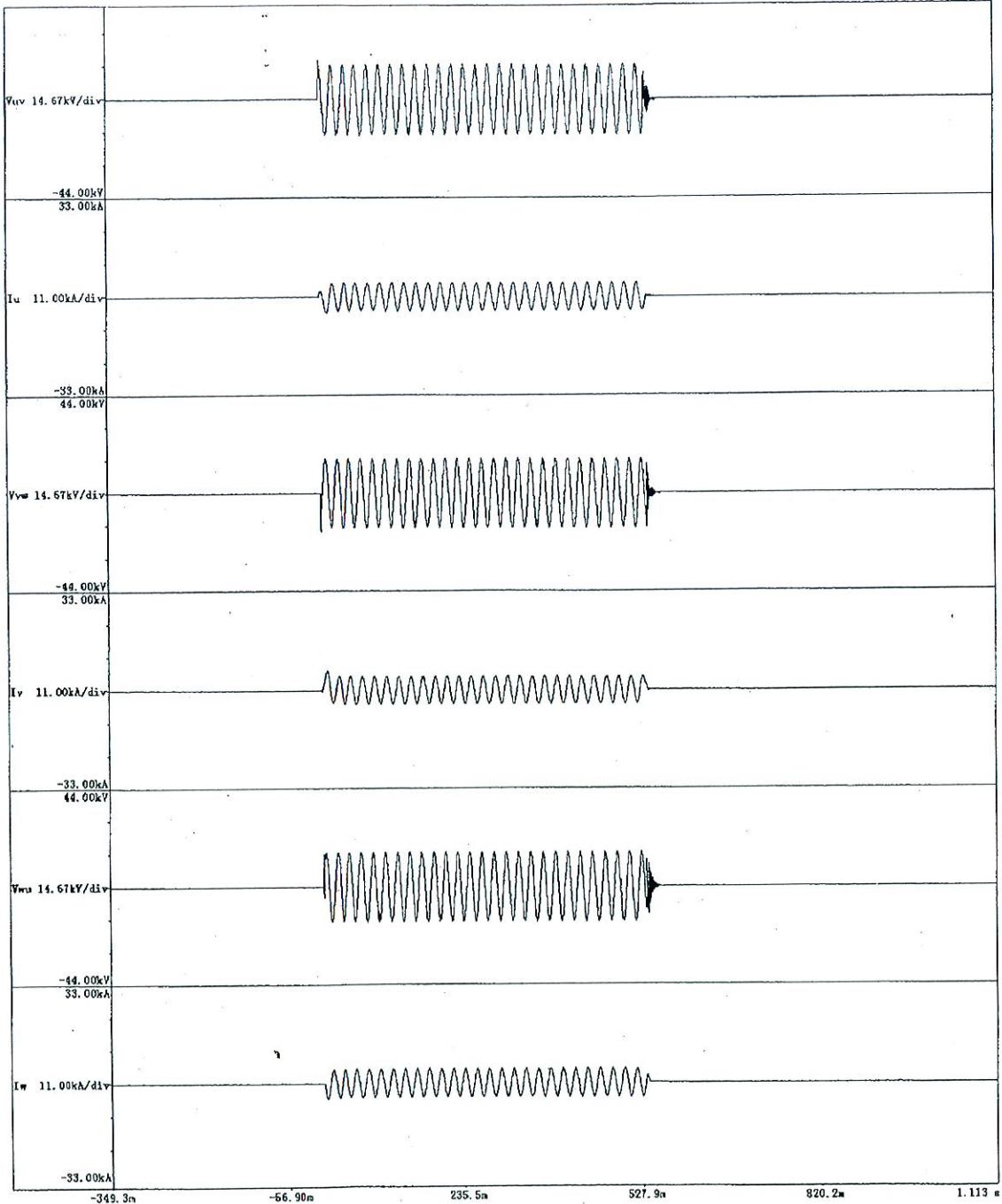


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S2160952.S04



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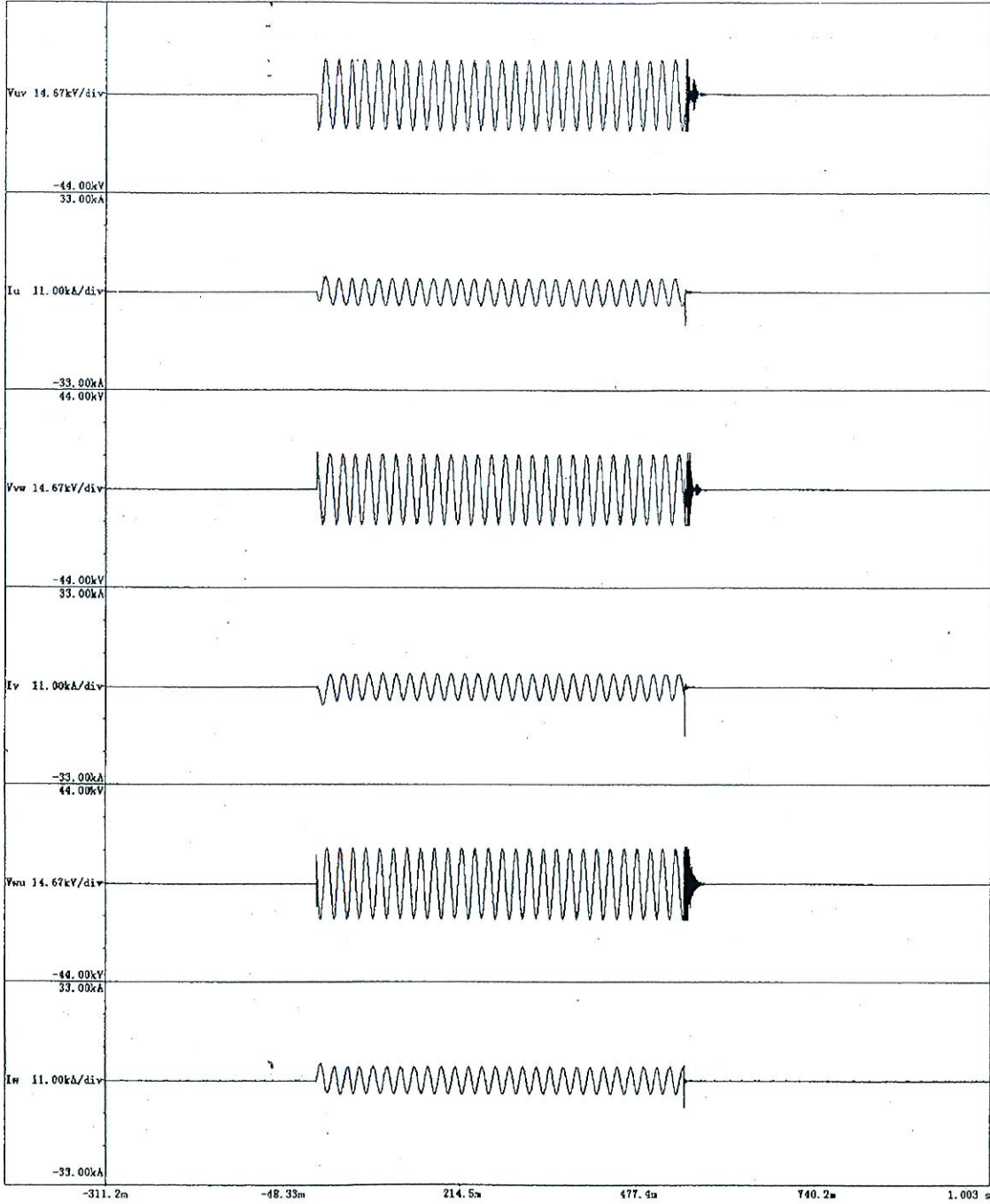
  
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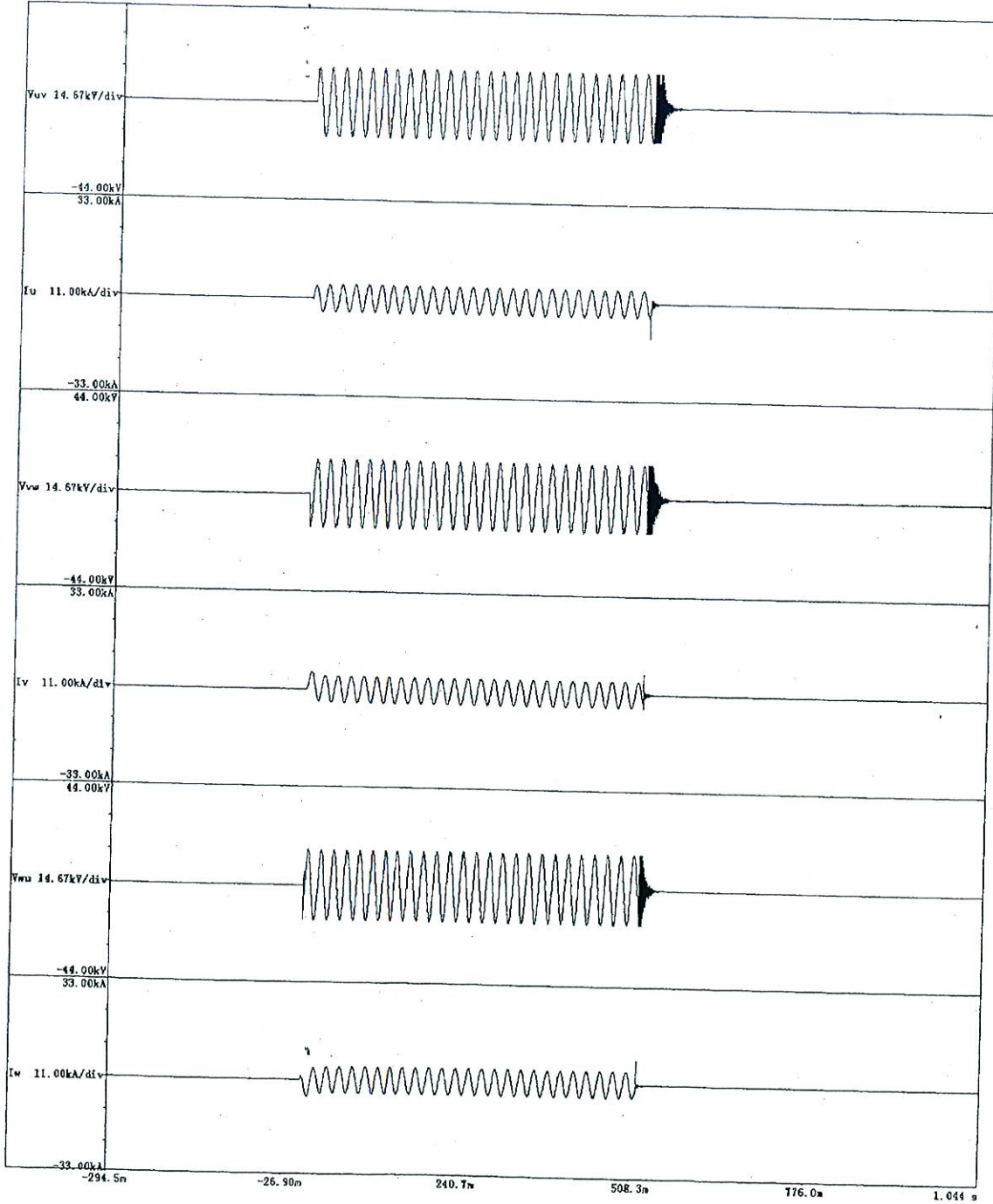


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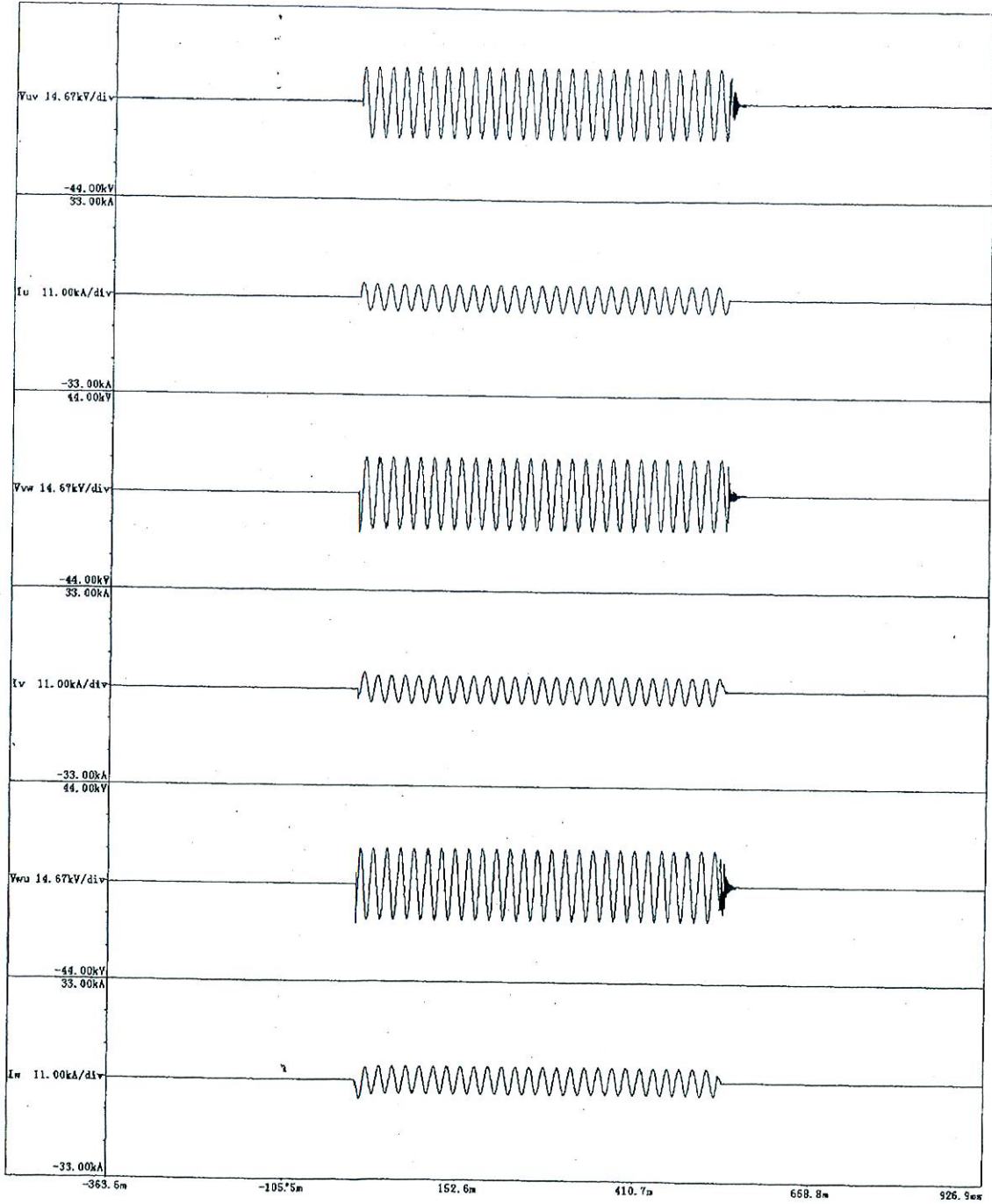
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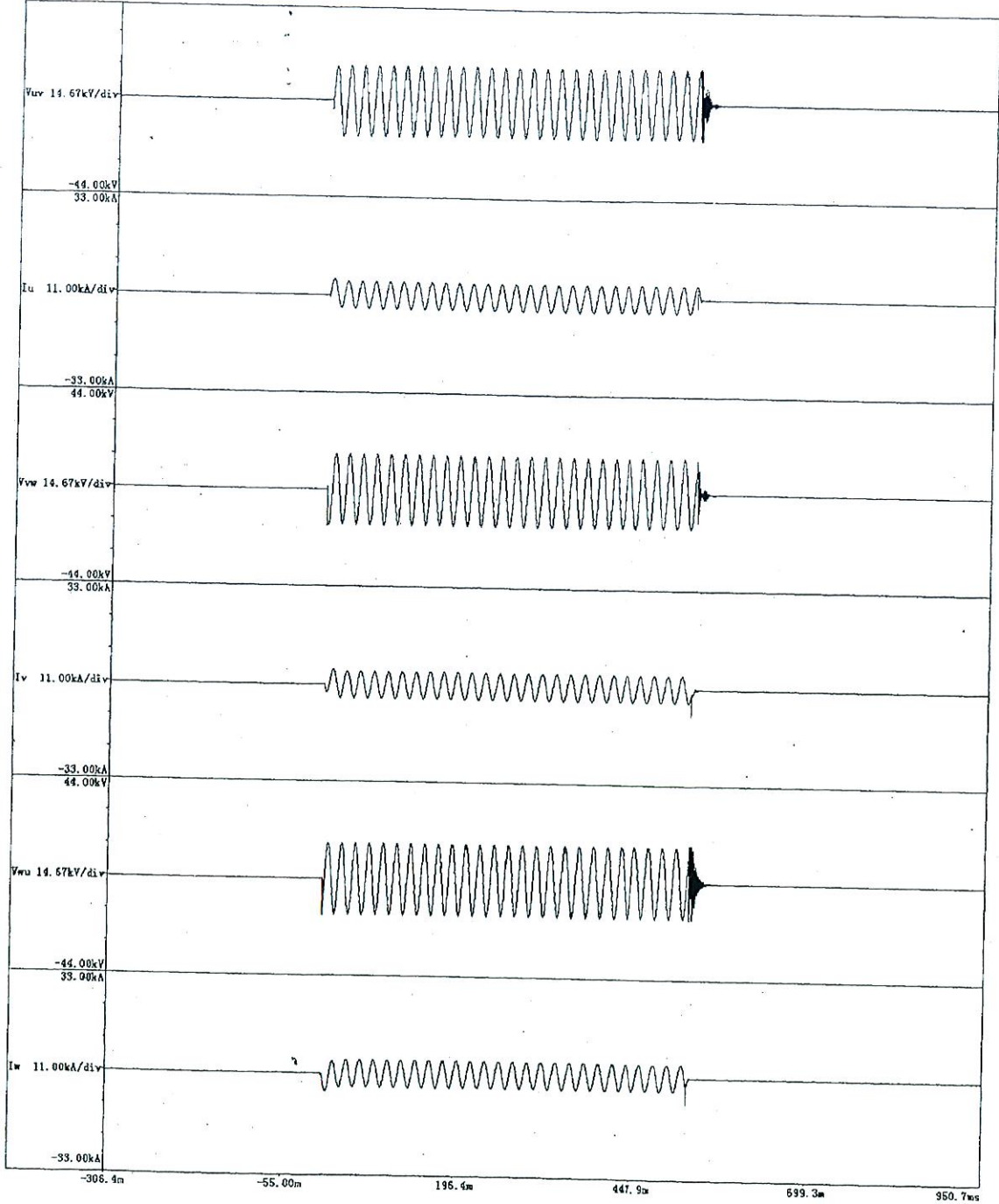


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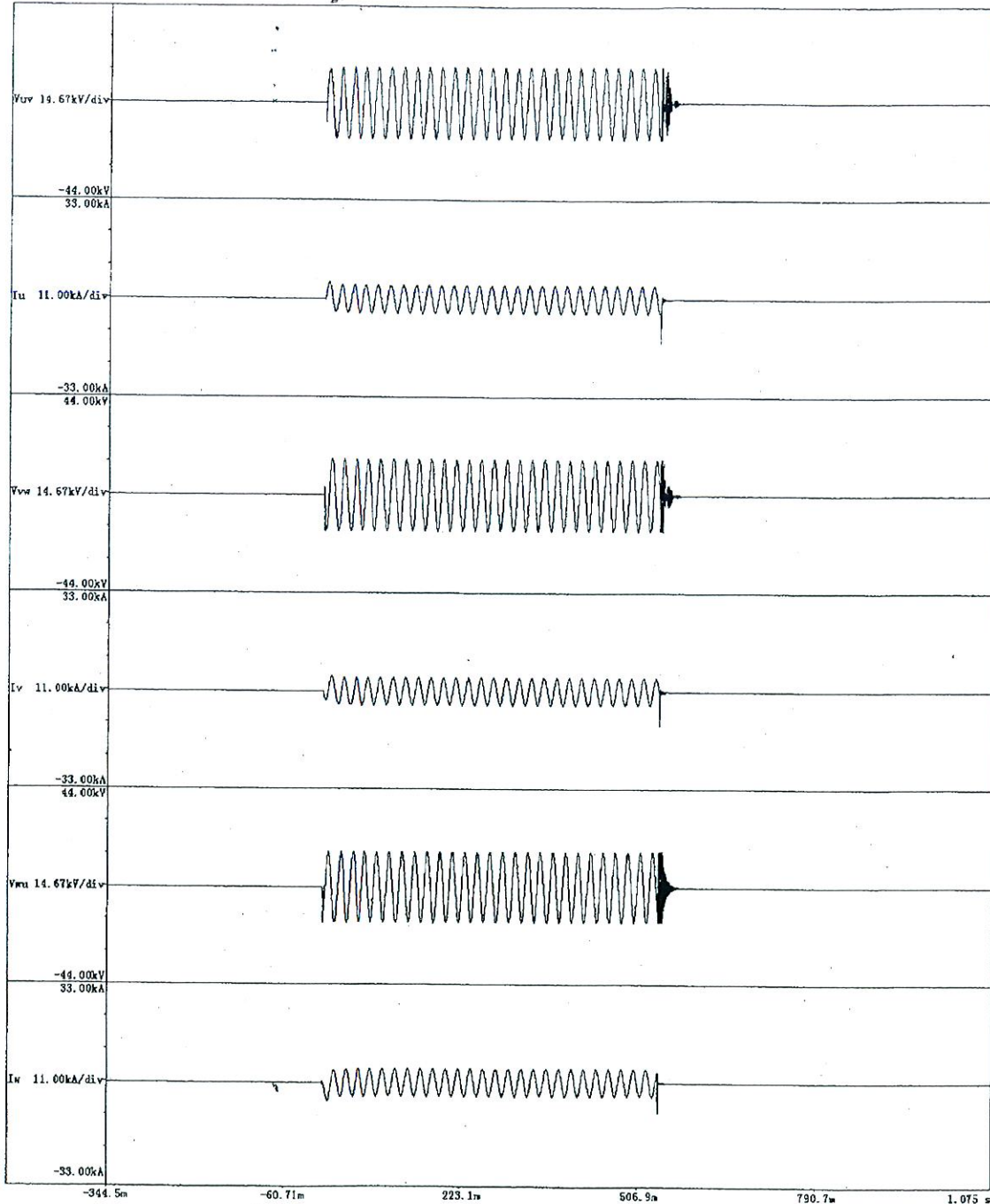
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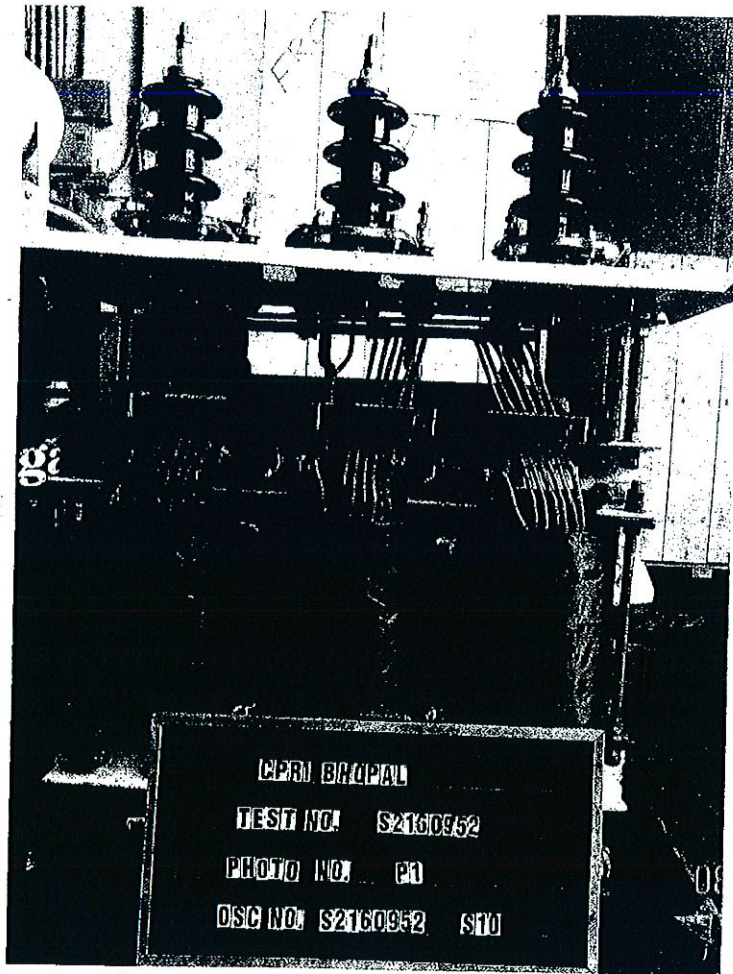
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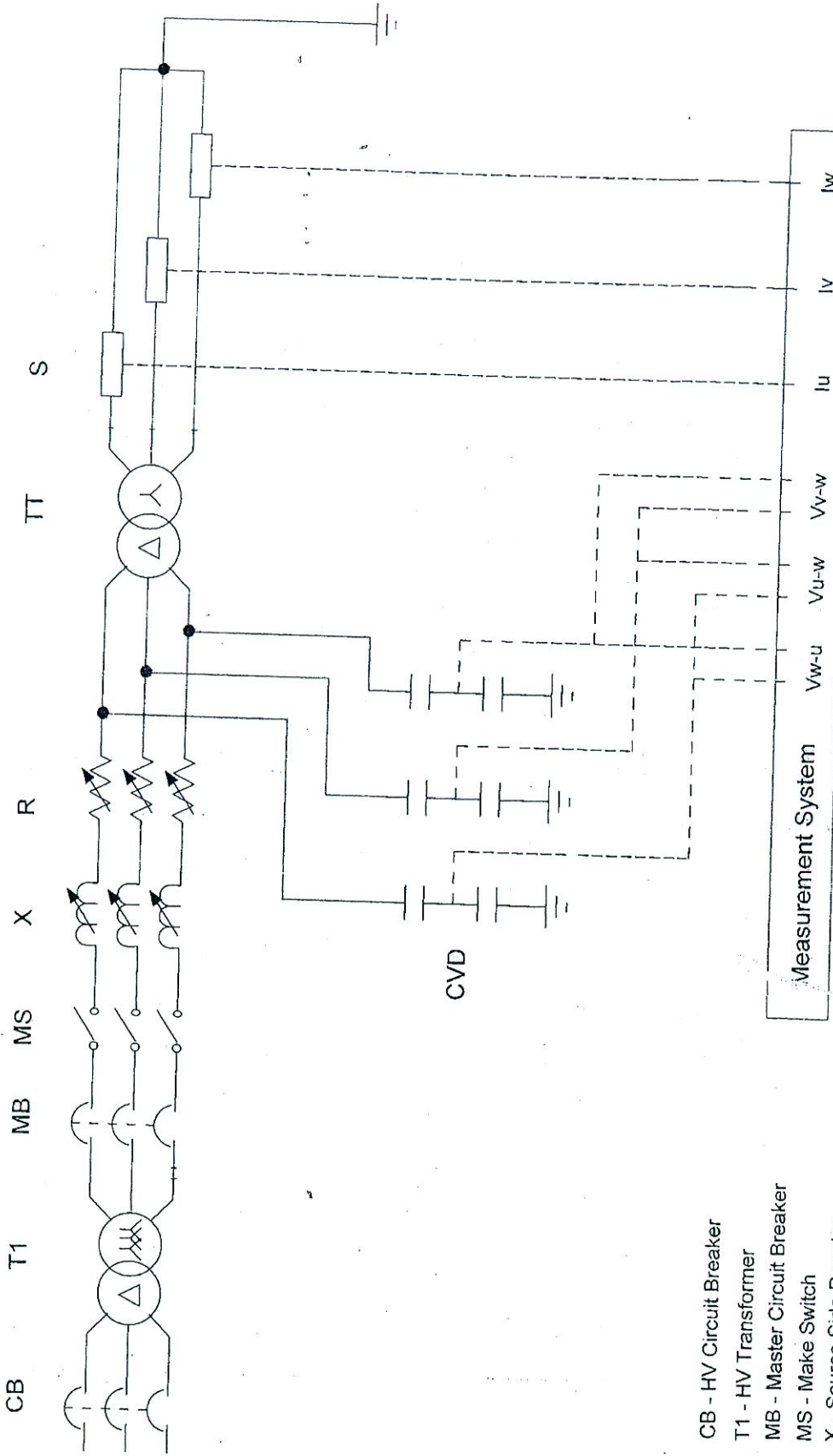


TEST ENGINEER





**CPRI Bhopal**



- CB - HV Circuit Breaker
- T1 - HV Transformer
- MB - Master Circuit Breaker
- MS - Make Switch
- X - Source Side Reactor
- R - Source Side Resistor
- TT - Transformer under Test
- CVD - Capacitive Voltage Divider
- S - Shunt



*[Signature]*  
TEST ENGINEER

OLTS/ICD-TR-01

MIN. AIR CLEARANCE

|       |    |     |
|-------|----|-----|
|       | LV | HV  |
| Ph-Ph | 60 | 110 |
| Ph-E  | 60 | 110 |

\* NOT PROVIDED DURING TEST.

TANK PLATE THICKNESS :

|              |              |
|--------------|--------------|
| MATERIAL     | : M.S. SHEET |
| TOP COVER    | : 4 mm       |
| SIDE PLATE   | : 3 mm       |
| BOTTOM PLATE | : 3 mm       |

| S/L NO | NAME OF ITEMS                          | QTY |
|--------|--|-----|
| * 1    | HV CONNECTOR                           | 3   |
| 2      | HV BUSHING (12 KV / 250 A)             | 3   |
| * 3    | DIAL TYPE TEMPERATURE METER            | 1   |
| 4      | TANK LIFTING HOOK                      | 4   |
| 5      | PRESSED STEEL RADIATOR (4 FINS / RAD.) | 2   |
| 6      | TANK STIFFENER                         | 1   |
| 7      | TANK DRAIN PLUG                        | 1   |
| 8      | TANK FOOT PLATE                        | 2   |
| 9      | RATING AND DIAGRAM PLATE               | 1   |
| 10     | CONSERVATOR FILLING PLUG               | 1   |
| 11     | CONSERVATOR OIL LEVEL GAUGE            | 1   |
| * 12   | LV CONNECTOR                           | 4   |
| 13     | LV BUSHING (1 KV / 250 A)              | 4   |
| 14     | EARTHING LUG                           | 1   |
| * 15   | SILICA JEL BREATHER                    | 1   |
| 16     | TAP CHANGER NOB                        | 1   |
| 17     | CCA LIFTING LUG                        | 2   |
| 18     | THERMOMETER POCKET                     | 1   |

WEIGHT :

CCA = 350 KG  
 OIL = 140 KG  
 TANK AND FITTINGS = 150 KG  
 TOTAL = 640 KG

OVERALL DIMENSION :

LENGTH (L) = 1250  
 BREADTH (B) = 740  
 HEIGHT (H) = 1270

|   |  |                   |
|---|--|-------------------|
| DRAWN   | DELWAR HOSSAIN (ASSISTANT MANAGER)         | SIGNATURE         |
| CHECKED   | MD. ZAHEDUL ISLAM (DEPUTY GENERAL MANAGER) |                   |
| APPROVED  | MD. MOHSIN ALI (EXECUTIVE DIRECTOR)        |                   |
| SCALE : NTS   | DIMENSION : mm                             | DATE : 07.06.2016 |
| DRG. NO. : CEL-DT-3PH-100-S/D1  |  | SHEET: 1/4        |
| TITLE: GENERAL ASSEMBLY (GA) DRAWING OF 100 KVA, 3-PH, 11/0.415 KV, DIST. TRANSFORMER |  |                   |

Confidence electric ltd.

FACTORY: NAYAPUR, BARABO, SONARGAON, NARAYANGANJ, BANGLADESH  
 HEAD OFFICE: UNIQUE TRADE CENTER (UTC), LEVEL-7, 06, PANTHAPATH, KAWRAN BAZAR, DHAKA-1215, BANGLADESH.

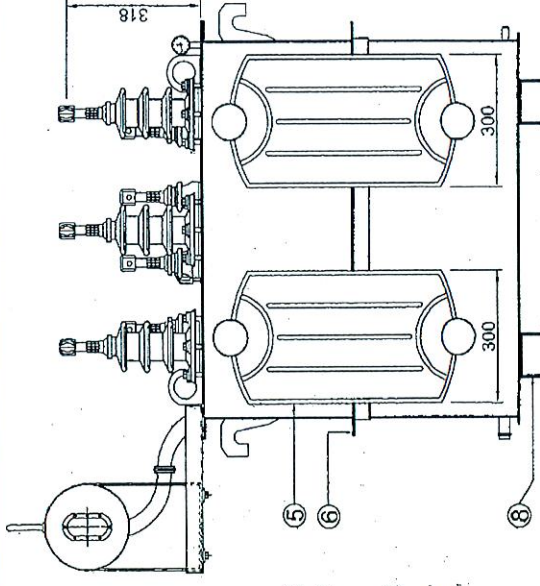
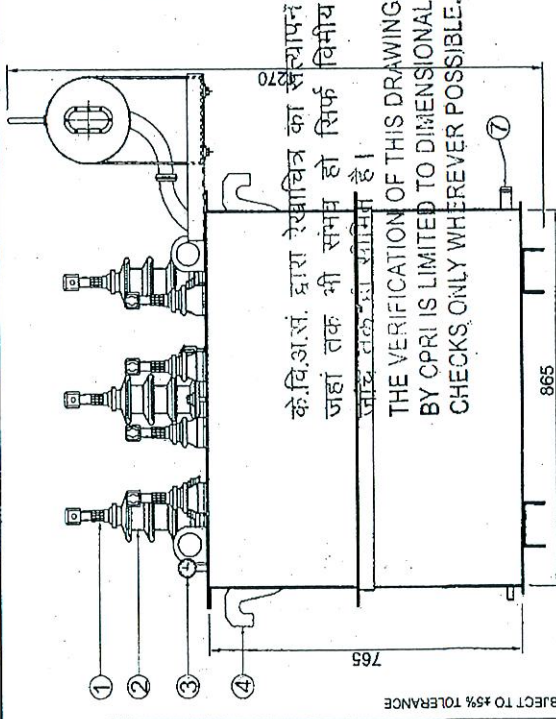


FIG : FRONT VIEW (LV SIDE)



के.वि.अं.सं. द्वारा रेखाचित्र का सत्यापन जहाँ तक भी संभव हो सके विनियमित है।  
 THE VERIFICATION OF THIS DRAWING BY CPRI IS LIMITED TO DIMENSIONAL CHECKS ONLY WHEREVER POSSIBLE.

रिपोर्ट क्रमांक J2160952  
 के संदर्भ में दस्तावेज Document Pertaining Report No. ....

अभियंता/विद्युत अभियंता  
 Engineering Officer  
 सी पी आर डी / C.P.R.I.  
 गोविंदपुरा, भोपाल Govindpura, Bhopal

FIG : FRONT VIEW (HV SIDE)

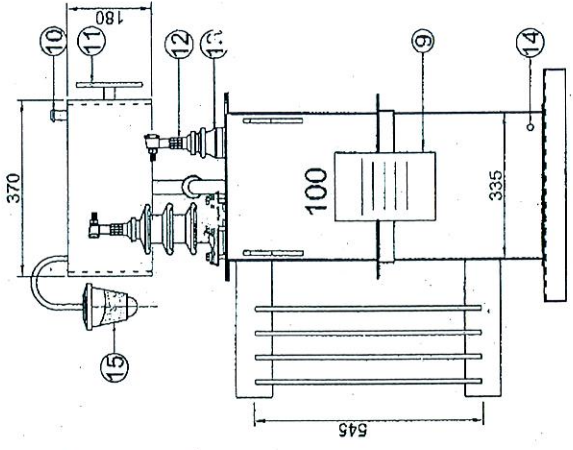


FIG : SIDE VIEW

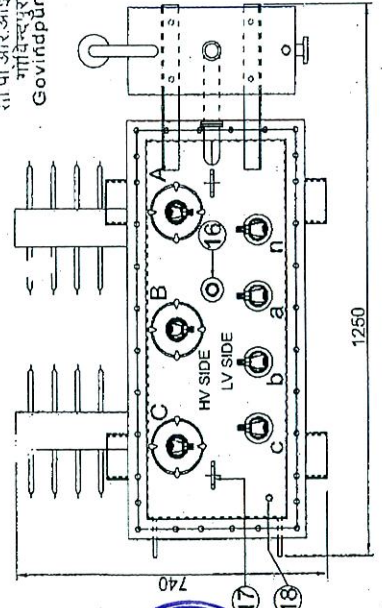


FIG : TOP VIEW

NOTE: ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED. WEIGHT AND DIMENSION ARE SUBJECT TO ±5% TOLERANCE



REV.-01



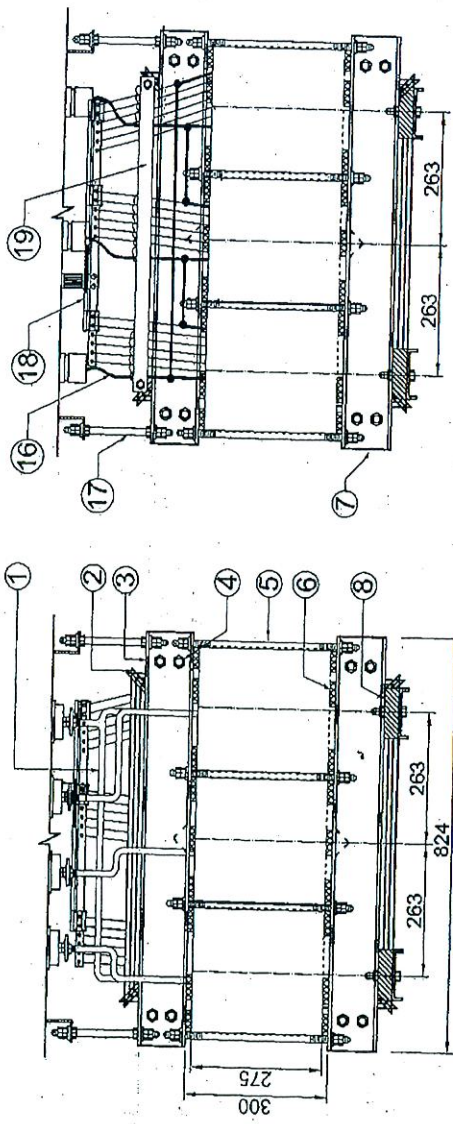


FIG: FRONT VIEW (LV SIDE)

FIG: FRONT VIEW (HV SIDE)

FIG: TOP VIEW

FIG: SIDE VIEW

**COPPER CONDUCTOR:**  
 LV: Bare size: 8.2 x 3.2 mm (2A1R),  
 Paper covered size: 8.7 x 3.7 mm  
 HV: SECW,  $\phi=1.38$  mm

| SL. NO | NAME OF ITEMS                               | QTY |
|--------|---|-----|
| 1      | LV LEAD                                     | 4   |
| 2      | CORE ( $\phi = 135$ )                       | 3   |
| 3      | TOP YOKE CHANNEL (100 x 50 x 4 thk.)        | 2   |
| 4      | CORE BOLT ( $\phi=14$ )                     | 8   |
| 5      | TIE ROD ( $\phi=14$ )                       | 8   |
| 6      | COIL SUPPORT BLOCK                          | 72  |
| 7      | BOTTOM YOKE CHANNEL (100 x 50 x 4 thk.)     | 2   |
| 8      | CORE SUPPORT BLOCK                          | 4   |
| 9      | WRAP ON CORE (CLEARANCE LV TO CORE) $>3.25$ |     |
| 10     | GAP BETWEEN HV AND LV COIL =10.             |     |
| 11     | LV COIL (OD=183)                            | 3   |
| 12     | HV COIL (OD=255)                            | 3   |
| 13     | FRAME INSULATION $\phi=1$ mm PRESS BOARD    | 4   |
| 14     | PHASE BARRIER=1 mm thk. 2 Pcs.              | 4   |
| 15     | FOOT PLATE.                                 | 2   |
| 16     | HV LEAD                                     | 3   |
| 17     | SUSPENSION ROD ( $\phi=14$ )                | 4   |
| 18     | TAP CHANGER (30 A, 5-POSITION)              | 1   |
| 19     | HV LEAD SUPPORT CLEAT                       | 1   |

**WEIGHT :**  
 CORE = 200 KG  
 COIL = 105 KG  
 FITTINGS = 45 KG  
 TOTAL = 350 KG

**TANK INNER DIMENSION :**  
 LENGTH (L) = 850  
 BREADTH (B) = 330  
 HEIGHT (H) = 750

| NAME   | SIGNATURE      |
|--|----------------|
| DRAWN<br>RELWAR HOSSAIN<br>(STANT MANAGER)   |                |
| CHECKED<br>MD. ZAHEDUL ISLAM<br>(DEPUTY GENERAL MANAGER)   |                |
| APPROVED<br>MD. MOHSIN ALI<br>(EXECUTIVE DIRECTOR)   |                |
| SCALE : NTS  | DIMENSION : mm |
| DATE : 07.06.2016  |                |
| DRG. NO. : CEL-DT-3PH-100-S/D1   | SHEET : 2/4    |
| <b>TITLE: CORE-COIL ASSEMBLY (CCA) DRAWING OF 100 KVA, 3-PH, 11/0.415 KV, DIST. TRANSFORMER.</b> |                |

**Confidence electric ltd.**

FACTORY:  
 NAYAPUR, BARABO, SONARGAON, NARAYANGANJ, BANGLADESH

HEAD OFFICE:  
 UNIQUE TRADE CENTER (UTC), LEVEL-7, 08, PANTHAPATH, KAWRAN BAZAR, DHAKA-1215, BANGLADESH.

रिपोर्ट क्रमांक: 921609/57  
 के.वि.अ.वी. द्वारा रेखाचित्र का सत्यापन  
 के सदर्भ में सत्यापन  
 Document Pertaining  
 Report No. ....

के.वि.अ.वी. द्वारा रेखाचित्र का सत्यापन  
 जहाँ तक भी संभव हो सिर्फ विभीय  
 जांच से ही सीमित है।  
 THE VERIFICATION OF THIS DRAWING  
 BY CPRI IS LIMITED TO DIMENSIONAL  
 CHECKS ONLY WHEREVER POSSIBLE.

विभागाध्यक्ष  
 Engineering Officer  
 विद्युत अभियंता (C.P.R.I.)  
 गोविन्दपुरा, ब्रिगेड

NOTE: DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED. WEIGHT AND DIMENSION ARE SUBJECT TO  $\pm 5\%$  TOLERANCE



REV.-01



150

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# CONFIDENCE ELECTRIC LIMITED

NAYAPUR, SONARGAON, NARAYANGANJ, BANGLADESH.

4Ø-4 HOLES

TRANSFORMER REFERENCE STANDARD : IEC-60076

THREE PHASE TRANSFORMER

|                             |         |                              |               |
|-----------------------------|---------|------------------------------|---------------|
| KVA                         | 100     | TYPE OF TRANSFORMER          | CORE          |
| VOLTS (HV)                  | 11000   | FREQUENCY Hz                 | 50            |
| VOLTS (LV)                  | 415/240 | IMPEDENCE VOLTAGE            | 4 %, ±10 %    |
| AMPS (HV)                   | 5.24    | VECTOR GROUP                 | Dyn 11        |
| AMPS (LV)                   | 139.12  | TOTAL WEIGHT KG              | 640           |
| PHASE (HV)                  | 3       | WEIGHT OF OIL KG             | 140           |
| PHASE (LV)                  | 3       | TYPE OF OIL                  | MINERAL       |
| Basic Insulation Level (KV) | 75      | CONDUCTOR MATERIAL (HV / LV) | Cu / Cu       |
|                             |         | TEMP.RISE OIL/WINDING        | 60° C / 65° C |
| YEAR OF MFG.                | 2016    | MAX. AMBIENT TEMP.           | 40° C         |

Power frequency withstand voltage (KV) : a) HV side : 28 b) LV side : 2.5

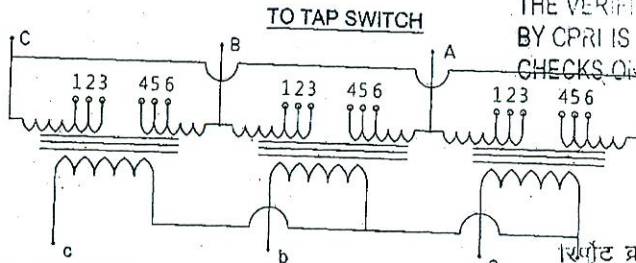
SERIAL NO. 1 0 0 / S / 4

CONTRACT NO.

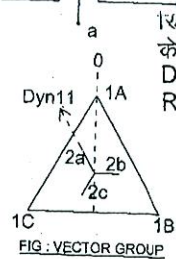
COOLING METHOD ONAN

के.वि.अ.सं. द्वारा रेखाचित्र का सत्यापन जहां तक भी संभव हो सिर्फ विमीय जांच तक ही सीमित है।

THE VERIFICATION OF THIS DRAWING BY CPRI IS LIMITED TO DIMENSIONAL CHECKS ONLY WHEREVER POSSIBLE.



| SWITCH POSITION | CONNECTION | HV VOLTS | LV VOLTS |
|-----------------|------------|----------|----------|
| 1               | 4 - 5      | 11275    | 415      |
| 2               | 3 - 5      | 11000    |          |
| 3               | 5 - 2      | 10725    |          |
| 4               | 2 - 6      | 10450    |          |
| 5               | 6 - 1      | 10175    |          |



रिपोर्ट क्रमांक .....  
के संदर्भ में दस्तावेज  
Document Pertaining  
Report No. ....

अतिरिक्त अधिकारी  
Engineering Officer  
सी.पी.आर.आई. / C.P.R.I.  
गोविन्दपुरा, भोपाल  
Govindpura, Bhopal

SA 160252



## Confidence electric ltd.

**FACTORY:**  
NAYAPUR, BARABO  
SONARGAON, NARAYANGANJ.  
BANGLADESH

**HEAD OFFICE:**  
UNIQUE TRADE CENTER (UTC), LEVEL-7,  
08, PANTHAPATH, KAWRAN BAZAR,  
DHAKA-1215. BANGLADESH.

REV.-01

|                                | NAME  | SIGNATURE         |
|--------------------------------|---|-------------------|
| DRAWN                          | DELWAR HOSSAIN<br>(ASSISTANT MANAGER)         |                   |
| CHECKED                        | MD. ZAHEDUL ISLAM<br>(DEPUTY GENERAL MANAGER) |                   |
| APPROVED                       | MD. MOHSIN ALI<br>(EXECUTIVE DIRECTOR)        |                   |
| SCALE : NTS                    | DIMENSION : mm                                | DATE : 07.06.2016 |
| DRG. NO. : CEL-DT-3PH-100-S/D1 | SHEET : 3/                                    |                   |

**TITLE : RATING AND DIAGRAM PLATE OF 100 KVA,  
3-PH, 11/0.415 KV, DIST. TRANSFORMER**









# परीक्षण रिपोर्ट TEST REPORT



**केन्द्रीय विद्युत अनुसंधान संस्थान**

( विद्युत मंत्रालय, भारत सरकार के अधीन एक स्वायत्त सोसायटी )

**CENTRAL POWER RESEARCH INSTITUTE**

(An Autonomous Society under the Ministry of Power, Govt. of India)

एस टी एल के सदस्य

Member of STL

**स्विचगियर परीक्षण तथा विकास केन्द्र**

SWITCHGEAR TESTING & DEVELOPMENT STATION

गोविन्दपुरा, भोपाल - 462 023

GOVINDPURA, BHOPAL - 462 023

फोन + 91 (0) 755 2586682 फैक्स +91 (0) 755-2587774

Phone + 91 (0) 755 2586682 Fax +91 (0) 755-2587774





**CENTRAL POWER RESEARCH INSTITUTE**  
(Member of STL)



**CPRI**

**TEST REPORT**

Test Report No. : 2016/STL/814 Dated : 19 OCT 2016

Name and Address of the Customer : M/s Confidence Electric Limited,  
Unique Trade Center (UTC), Level-7,08,  
Panthapath, Kawranbazar,  
Dhaka, Bangladesh.

Name and Address of the Manufacturer : M/s Confidence Electric Limited,  
Barabo, Sonargaon, Narayanganj,  
Bangladesh.

Particulars of Sample(s) Tested : 100kVA, 3 Phase, Distribution Transformer

Condition of sample(s) on receipt : New  
Type : Outdoor, Oil Immersed  
Designation : Conservator Type  
Serial Number(s) : 100/S/4  
Number of Sample(s) Tested : One  
CPRI sample code number(s) : STDSSTL16S0526  
Sealing of the sample, if any : No.

Particulars of test(s) conducted : Test with Lightning impulse chopped on tail

Date(s) of Test(s) : 18/07/2016  
Test(s) in accordance with : Cl. 13.3.2.1: 60076(Part-3), 2013  
Standard/specification  
Sampling Plan : NIL  
Customer's Requirement : NIL  
Deviations, if any : NIL

**Name of the witnessing persons**

Customer's Representatives : 1) Md. Zahedul Islam, DGM  
2) Md. Saiful Islam, Sr. Manager

Other than Customer's Representatives : NIL

Test subcontracted with name and address of the laboratory : NONE

**Documents constituting this report (in words)**

No. of Sheet(s) : FIVE  
No. of Oscillogram(s) : EIGHTEEN  
No. of Graph(s) : NIL  
No. of Photograph(s) : NIL  
No. of Test Circuit Diagram(s) : NIL  
No. of drawing(s) : TWO

(ARVIND PANDEY)  
TEST ENGINEER



(SARITA DONGRE)  
JOINT DIRECTOR



CENTRAL POWER RESEARCH INSTITUTE  
(Member of STL)



CPRI

TEST REPORT

Test Report Number: 2016/STL/814

Date: 19 OCT 2016

SUMMARY OF TEST

1. Test conducted : Test with lightning impulse chopped on tail
2. Rating for which tested : 75kVp
3. DOCUMENTS CONSTITUTING THIS REPORT :
  - 3.1 Supplementary test report : NIL
  - 3.2 Oscillogram No(s) : 20160718-09 to 26
  - 3.3 Drawing of the equipment tested :
    - 1) CEL-DT-3PH-100-S/D1 Sheet 3/4 Rev. 01
    - 2) CEL-DT-3PH-100-S/D1 Sheet 1/4 Rev. 01
  - 3.4 Test circuit drawing No(s) : NIL
  - 3.5 Photograph No(s) : NIL

(ARVIND PANDEY)  
TEST ENGINEER

SWITCHGEAR TESTING & DEVELOPMENT STATION  
COVVAIPURA, BANGALORE  
Phone: 4910766, 2562222 Fax: 4910763, 2562217

Sheet 2 of 5





**CENTRAL POWER RESEARCH INSTITUTE**  
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**CPRI**

TEST REPORT

Test Report Number: 2016/STL/814

Date: 19 OCT 2016

DESCRIPTION OF THE SAMPLE TESTED

(As assigned by the manufacturer)

Sample : Distribution Transformer  
 Rated Power (kVA) : 100  
 Rated Voltage HV (Volts) : 11000  
     LV (Volts) : 415  
 Rated Current HV (Amps) : 5.24  
     LV (Amps) : 139.12  
 No. of Phases : Three  
 Insulation level LV (kV rms/kV Peak) : 2.5/-  
 Insulation level HV (kV rms/kV Peak) : 28/75  
 Type of Cooling : ONAN  
 Connection (HV/LV) : Delta/Star  
 Frequency (Hz) : 50  
 % Impedance : 4% [ with  $\pm 10\%$  tolerance ]  
 X/R : -  
 Temperature rise of oil /Winding (K) : 60/65  
 Winding Material : Copper  
 Type of Winding : Spiral & Layer  
 Quantity of Oil (litres) : -  
 Weight of Oil (kgs) : 140  
 Weight of core and winding (kgs) : 325  
 Total weight (Kgs) : 640  
 Vector group / Polarity : Dyn11  
 Year of Manufacture : 2016  
 Serial Number : 100/S/4

| Tap No | Primary Voltage V | Secondary Voltage V | %Impedance | X/R ratio |
|--------|-------------------|---------------------|------------|-----------|
| 1      | 11275             | 415                 | -          | -         |
| 2      | 11000             | 415                 | 4.0        | -         |
| 5      | 10175             | 415                 | -          | -         |

*(Signature)*  
(ARVIND PANDEY)  
TEST ENGINEER

SWITCHGEAR TESTING & DEVELOPMENT STATION  
GOVINDPURA, SHOPAL (58202)  
Phone : +91(0)795 2566802 Fax : +91(0)795 2567776

Sheet 3 of 5



**CENTRAL POWER RESEARCH INSTITUTE**  
(Member of STL)



**CPRI**

**TEST REPORT**

Test Report Number: 2016/STL/814

Date: 19 OCT 2016

SCHEDULE OF TESTS

Type of test : Test with lightning impulse chopped on tail  
Condition of the sample : New

Atmospheric conditions:

| Ambient temperature (degC) | Dry bulb temperature (degC) | Wet bulb temperature (degC) | Atm. pressure (Hg-mm) |
|----------------------------|-----------------------------|-----------------------------|-----------------------|
| 28                         | 28                          | 26                          | 712                   |

Atmospheric correction factor : Not applicable

Test voltage on HV winding (kVpeak) : 75

Test details : The sample was tested with 1.2/50  $\mu$ sec standard full wave and chopped on tail wave of negative polarity as per standard.

| Voltage application | Description of test          | Oscillogram Nos. |             |             |
|---------------------|------------------------------|------------------|-------------|-------------|
|                     |                              | A-ph, N-tap      | B-ph, L Tap | C-ph, H tap |
| 1st application     | full wave at reduced voltage | 20160718-09      | 20160718-15 | 20160718-21 |
| 2nd application     | full wave at full voltage    | 20160718-10      | 20160718-16 | 20160718-22 |
| 3rd application     | chopped wave at full voltage | 20160718-11      | 20160718-17 | 20160718-23 |
| 4th application     | chopped wave at full voltage | 20160718-12      | 20160718-18 | 20160718-24 |
| 5th application     | full wave at full voltage    | 20160718-13      | 20160718-19 | 20160718-25 |
| 6th application     | full wave at full voltage    | 20160718-14      | 20160718-20 | 20160718-26 |

Observations : No abnormality noticed . No significant differences were noticed between voltage and current transients recorded at reduced voltage and those recorded at full test voltage.

**CONCLUSION** : The test results indicate that the sample tested complies with the requirement of the CI.13.3.2.1 of IEC:60076 (Part-3), 2013.

(ARVIND PANDEY)  
TEST ENGINEER

SWITCHGEAR TESTING & DEVELOPMENT STATION  
GOVINDPURA, BHOPAL 462020  
Phone: +91(0)755 2585662 Fax: +91(0)755 2587774



Sheet 4 of 6



CENTRAL POWER RESEARCH INSTITUTE  
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CPRI

TEST REPORT

Test Report Number: 2016/STL/814

Date: 19 OCT 2016

NOTE

- a) The Test results relate only to the item(s) tested.
- b) Publication or reproduction of the test report /Certificate in any form other than by complete set of the whole test report /Certificate and in the language written is not permitted without the written consent of CPRI.
- c) Any Corrections/erasure invalidates the test Report/Certificate.
- d) NABL has Accredited this laboratory as per ISO 17025-2005 standard, vide certificate no. T-0011 for the tests carried out.
- e) Any anomaly/discrepancy in the test report /Certificate should be brought to the notice of CPRI within 45 days from the date of issue.
- f) The verification of the sample drawings by CPRI is limited to dimensional checks only wherever possible.
- g) CPRI Issues two kinds of documents:

Test Report:

The test report is issued when the sample is tested for specific test required by the customer either in accordance with National/International standards or as per customer's requirements but no certification on the performance of the sample tested. The test report will contain the record of the values of test parameters as obtained during testing, the physical condition of the apparatus during testing, the physical condition of the apparatus during/after the test(s), copy(ies) of Oscillogram(s), record of supplementary test(s) if any conducted but no certification on the performance of the apparatus tested.

Test Certificate:

The test certificate is issued on request and payment of the prescribed charges only when the apparatus of particular type and rating has satisfactorily passed all the specified tests in compliance with condition stipulated in a published National/International Standards.

- h) All Documents constituting this test report/certificate are stitched together with a Continuous silk thread/silk ribbon, the two ends of which have been brought over the front sheet of this test report/certificate and sealed with a CPRI logo printed paper sticker/embossed.

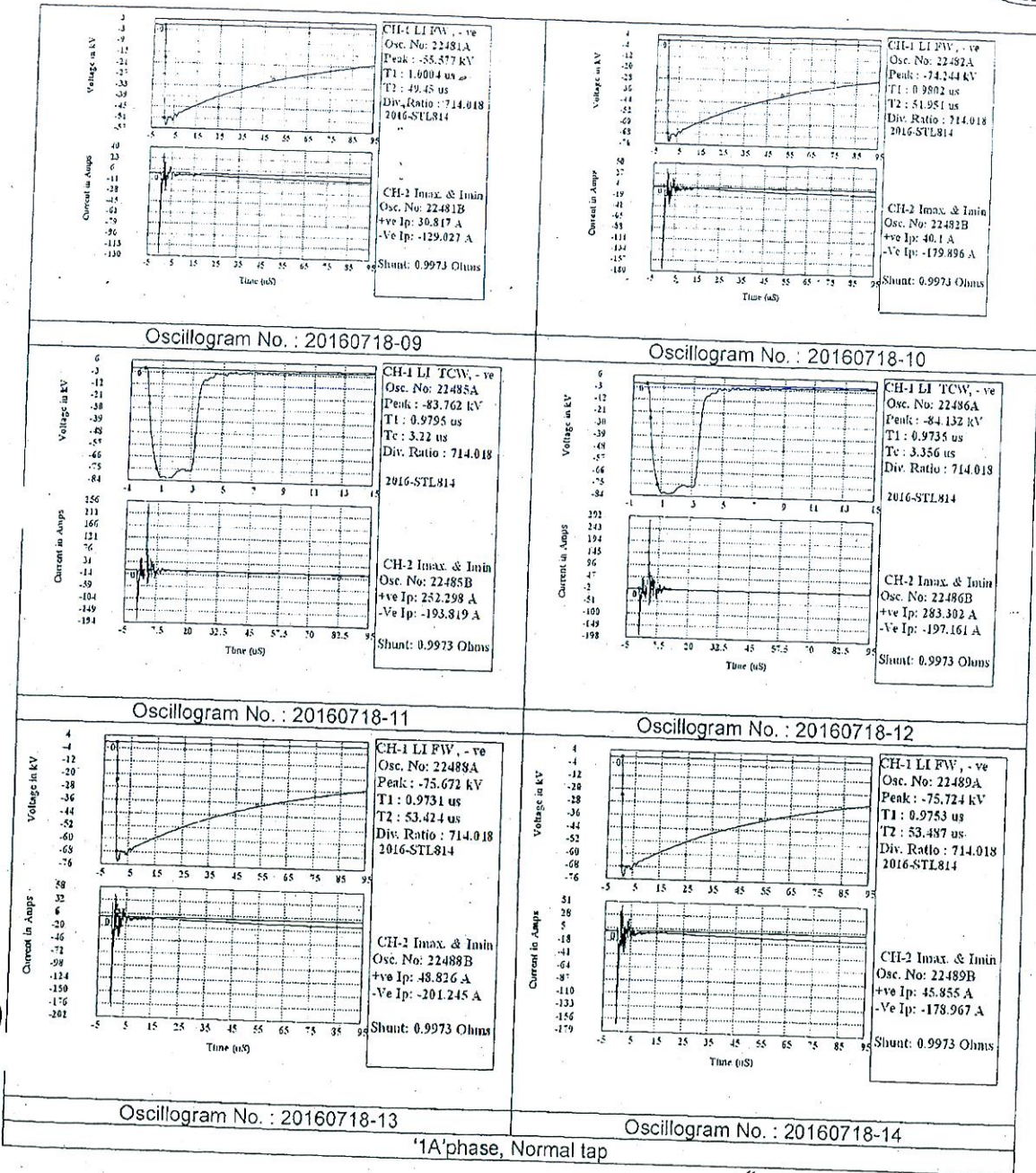
(ARVIND PANDEY)  
TEST ENGINEER



SWITCHGEAR TESTING & DEVELOPMENT STATION  
GOVINDPURA, BHOPAL-462020  
Phone: +91 (0)755 2609902 Fax: +91 (0)755 2587774

Sheet 5 of 5

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'1A' phase, Normal tap

परीक्षण रिपोर्ट क्रमांक  
के समक्ष में दस्तावेज  
Document Pertaining  
Testing Report No. 2016/STL/814

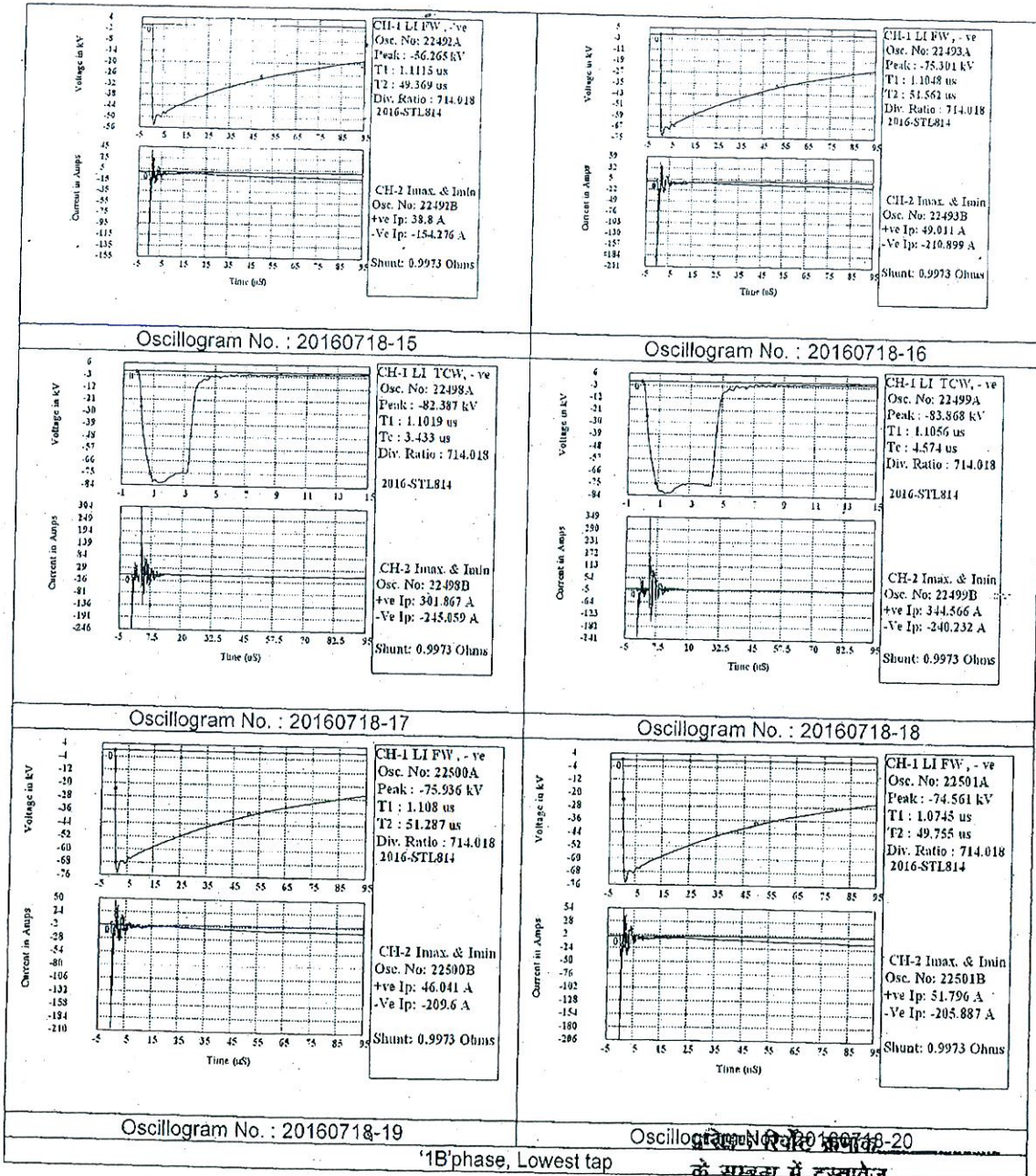
अभियंत्रिका अधिकारी  
Engineering Officer  
श्री. पी. आर. जाई / C.P.R.I  
गोविन्दपुरा / Govindpura  
भोपाल / Bhopal

SWITCHGEAR TESTING & DEVELOPMENT STATION  
GOVINDPURA, BHOPAL 462023  
Phone: +91(0)755 2586682 Fax: +91(0)755 2587774





CENTRAL POWER RESEARCH INSTITUTE  
(Member of STL)



'1B' phase, Lowest tap

के सम्बन्ध में दस्तावेज  
Document Pertaining  
Testing Report No. 2016/STL/814

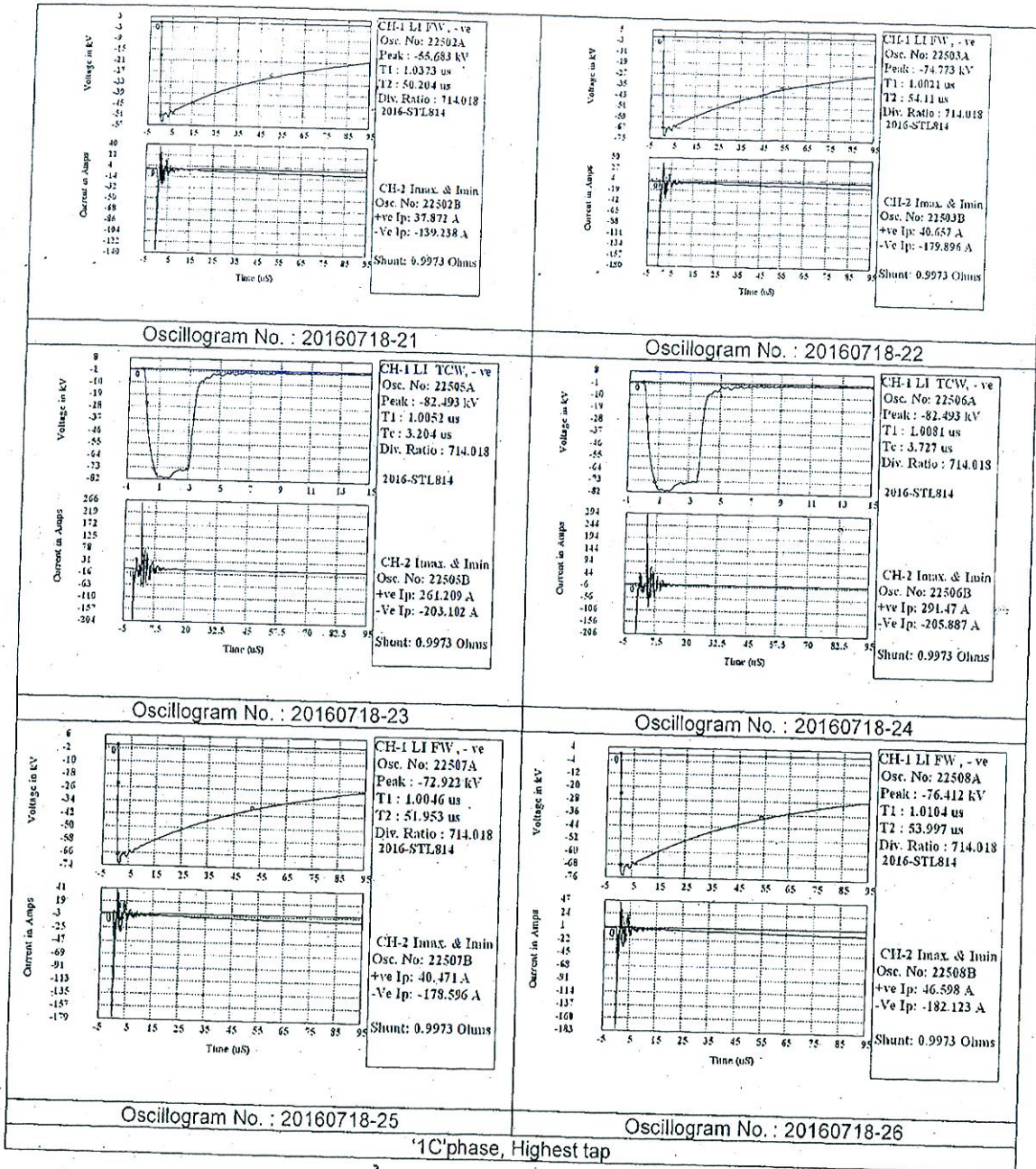
अभियान्तिकी अधिकारी  
Engineering Officer  
सी.पी.आर.आई / C.P.R.I.  
गोविन्दपुरा / Govindpura  
भोपाल / Bhopal

SWITCHGEAR TESTING & DEVELOPMENT STATION  
GOVINDPURA, BHOPAL 462023  
Phone : +91(0)755 2586682 Fax : +91(0)755 2587774





CENTRAL POWER RESEARCH INSTITUTE  
(Member of STL)



'1C' phase, Highest tap

परिक्षण रिपोर्ट क्रमांक.....  
के सम्बन्ध में दस्तावेज  
Document Pertaining  
Testing Report No. 2016/STL/074

अभियंत्रिकी अधिकारी  
Engineering Officer  
सी.पी.आर.आई / C.P.R.I  
गोविन्दपुरा / Govindpura  
भोपाल / Bhopal

SWITCHGEAR TESTING & DEVELOPMENT STATION  
GOVINDPURA, BHOPAL 462023  
Phone: +91(0)755 2586682 Fax: +91(0)755 2587774





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# CONFIDENCE ELECTRIC LIMITED

NAYAPUR, SONARGAON, NARAYANGANJ, BANGLADESH.

TRANSFORMER REFERENCE STANDARD : IEC-60076

## THREE PHASE TRANSFORMER

4Ø-4 HOLES

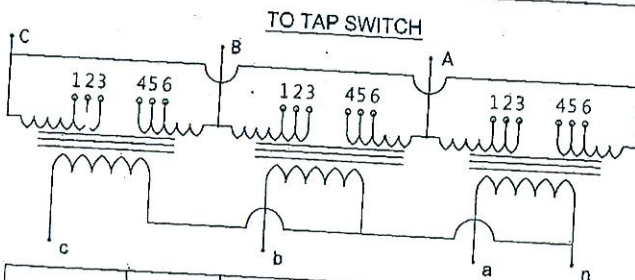
|                             |         |                              |               |
|-----------------------------|---------|------------------------------|---------------|
| KVA                         | 100     | TYPE OF TRANSFORMER          | CORE          |
| VOLTS (H <sup>v</sup> )     | 11000   | FREQUENCY Hz                 | 50            |
| VOLTS (LV)                  | 415/240 | IMPEDENCE VOLTAGE            | 4 %, ±10 %    |
| AMPS (HV)                   | 5.24    | VECTOR GROUP                 | Dyn 11        |
| AMPS (LV)                   | 139.12  | TOTAL WEIGHT KG              | 640           |
| PHASE (HV)                  | 3       | WEIGHT OF OIL KG             | 140           |
| PHASE (LV)                  | 3       | TYPE OF OIL                  | MINERAL       |
| Basic Insulation Level (KV) | 75      | CONDUCTOR MATERIAL (HV / LV) | Cu / Cu       |
|                             |         | TEMP. RISE OIL/WINDING       | 60° C / 65° C |
| YEAR OF MFG.                | 2016    | MAX. AMBIENT TEMP.           | 40° C         |

Power frequency withstand voltage (KV) : a) HV side : 28 b) LV side : 2.5

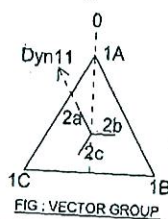
SERIAL NO. 1 0 0 / S / 4

CONTRACT NO.

COOLING METHOD ONAN



| SWITCH POSITION | CONNECTION | HV VOLTS | LV VOLTS |
|-----------------|------------|----------|----------|
| 1               | 4 - 5      | 11275    | 415      |
| 2               | 3 - 5      | 11000    |          |
| 3               | 5 - 2      | 10725    |          |
| 4               | 2 - 6      | 10450    |          |
| 5               | 6 - 1      | 10175    |          |



The Verification of this Drawing by CPRI is Limited to Dimensional Check Only Wherever Document Referring to Test Report No. 2016/SZL/819

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### Confidence electric ltd.

**FACTORY:**  
 NAYAPUR, BARABO  
 SONARGAON, NARAYANGANJ.  
 BANGLADESH

**HEAD OFFICE:**  
 UNIQUE TRADE CENTER (UTC), LEVEL-7,  
 08, PANTHAPATH, KAWRAN BAZAR,  
 DHAKA-1215. BANGLADESH.

REV.-01

| NAME  |   | SIGNATURE         |
|---|---|-------------------|
| DRAWN   | DELWAR HOSSAIN<br>(ASSISTANT MANAGER)         |                   |
| CHECKED   | MD. ZAHEDUL ISLAM<br>(DEPUTY GENERAL MANAGER) |                   |
| APPROVED  | MD. MOHSIN ALI<br>(EXECUTIVE DIRECTOR)        |                   |
| SCALE : NTS   | DIMENSION : mm                                | DATE : 07.06.2016 |
| DRG. NO. : CEL-DT-3PH-100-S/D1  | SHEET : 3/4                                   |                   |
| <b>TITLE : RATING AND DIAGRAM PLATE OF 100 KVA,<br/>                 3-PH, 11/0.415 KV, DIST. TRANSFORMER</b> |   |                   |





| MIN. AIR CLEARANCE |     |
|--------------------|-----|
| LV                 | HV  |
| Ph-Ph              | 60  |
| Ph-E               | 60  |
|                    | 110 |
|                    | 110 |

\* NOT PROVIDED DURING TEST.

**TANK PLATE THICKNESS:**

|              |              |
|--------------|--------------|
| MATERIAL     | : M.S. SHEET |
| TOP COVER    | : 4 mm       |
| SIDE PLATE   | : 3 mm       |
| BOTTOM PLATE | : 3 mm       |

| SL NO | NAME OF ITEMS                          | QTY |
|-------|--|-----|
| 1     | HV CONNECTOR                           | 3   |
| 2     | HV BUSHING (12 KV / 250 A)             | 3   |
| 3     | DIAL TYPE TEMPERATURE METER            | 1   |
| 4     | TANK LIFTING HOOK                      | 4   |
| 5     | PRESSED STEEL RADIATOR (8 FINS / RAD.) | 2   |
| 6     | TANK STIFFENER                         | 1   |
| 7     | TANK DRAIN PLUG                        | 1   |
| 8     | TANK FOOT PLATE                        | 2   |
| 9     | RATING AND DIAGRAM PLATE               | 1   |
| 10    | CONSERVATOR FILLING PLUG               | 1   |
| 11    | CONSERVATOR OIL LEVEL GAUGE            | 1   |
| 12    | LV CONNECTOR                           | 4   |
| 13    | LV BUSHING (1 KV / 250 A)              | 4   |
| 14    | EARTHING LUG                           | 1   |
| 15    | SILICA JEL BREATHER                    | 1   |
| 16    | TAP CHANGER NOB                        | 1   |
| 17    | CCA LIFTING LUG                        | 2   |
| 18    | THERMOMETER POCKET                     | 1   |

**WEIGHT:**

CCA = 350 KG  
 OIL = 140 KG  
 TANK AND FITTINGS = 150 KG  
 TOTAL = 640 KG

**OVERALL DIMENSION:**

LENGTH (L) = 1250  
 BREADTH (B) = 740  
 HEIGHT (H) = 1270

| NAME   | SIGNATURE        |
|--|------------------|
| DRAWN: DELWAR HOSSAIN (ASSISTANT MANAGER)  |                  |
| CHECKED: MD. ZAHEDUL ISLAM (DEPUTY GENERAL MANAGER)                                  |                  |
| APPROVED: MD. MOHSIN ALI (EXECUTIVE DIRECTOR)  |                  |
| SCALE: NTS   | DIMENSION: mm    |
| DRG. NO.: CEL-DT-3PH-100-S/D1  | DATE: 07.06.2016 |
| TITLE: GENERAL ASSEMBLY (GA) DRAWING OF 100 KVA, 3-PH, 110/415 KV, DIST. TRANSFORMER |                  |
| SHEET: 1/4   |                  |

**Confidence electric ltd.**  
 FACTORY: NATAPUR, BARABO, SONARGAON, NARAYANGANJ, BANGLADESH  
 HEAD OFFICE: UNIQUE TRADE CENTER (UTC), LEVEL-7, 08, PANTHAPATH, KAWRAN BAZAR, DHAKA-1215, BANGLADESH.

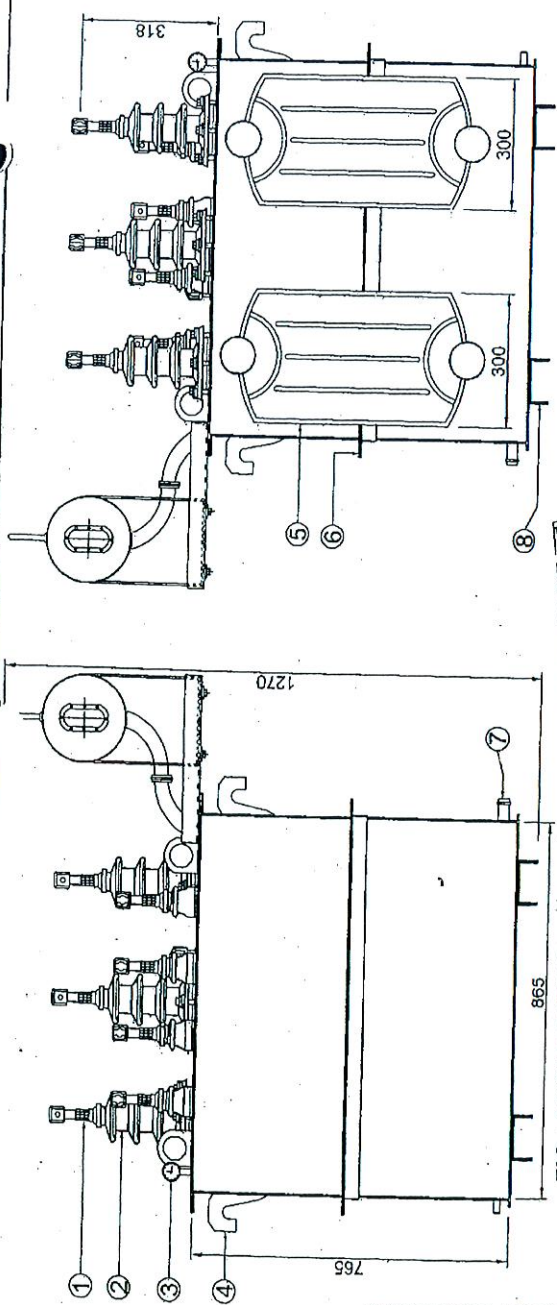


FIG : FRONT VIEW ( LV SIDE )

क.वि.अ.स. द्वारा इस रेखाचित्र का सत्यापन जारी तक भी समाप्त है सिर्फ दिनांक जारी तक सीमित है।  
 The Verification of this Drawing by CPRI is Limited to Dimensional Check Only Wherever Possible.  
 दस्तावेज परीक्षण रिपोर्ट नं. 2616157/1819  
 Pertaining to Test Report No. 2616157/1819

अभियंता/सहायक अभियंता  
 Engineering Officer  
 सी.पी.आर.अ.स. / C.P.R.  
 भोपाल / Bhopal

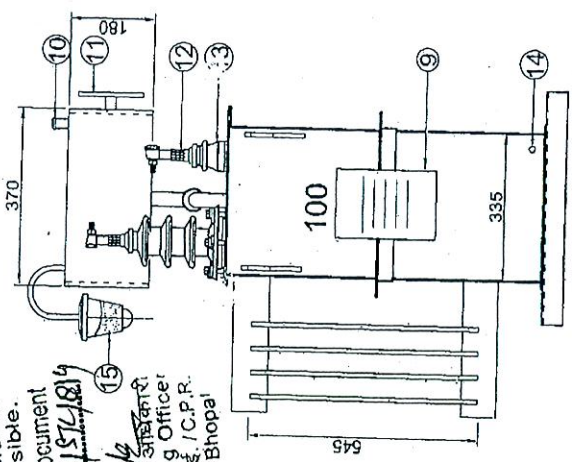


FIG : SIDE VIEW

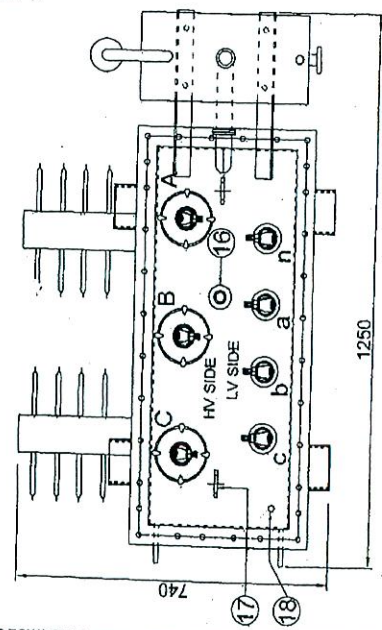


FIG : TOP VIEW

NOTE: ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED. WEIGHT AND DIMENSION ARE SUBJECT TO ±5% TOLERANCE

REV.-01





## सी पी आर आई संगठन

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