

CPRI

TEST REPORT



Central Power Research Institute

**(A Govt. of India Society)
P.B.No. 8066, Sadashivanagar Post Office,
Sir C.V. Raman Road,
Bengaluru - 560 080 (INDIA)**

CENTRAL POWER RESEARCH INSTITUTE
(Member of STL)



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TEST REPORT

Test Report Number	SC15713A	Dated: 8 th January, 2016
Name & Address of the Customer	M/s. Millennium Switch Gear, No. 45,46,3, 18 th Cross, Vinayaka Layout, Andhrahalli Main Road, Bengaluru – 560 091.	
Name & Address of the Manufacturer	M/s. Millennium Switch Gear, No. 45,46,3, 18 th Cross, Vinayaka Layout, Andhrahalli Main Road, Bengaluru – 560 091.	
Particulars of sample tested	Low-voltage switchgear and controlgear assembly- 415 V 3200 A LT Panel	
Condition of the sample on Receipt	New	
Type	Indoor	
Designation	---	
Serial Number (s)	MSG-001-2015/16	
Number of samples tested	One	
Date (s) of test (s)	31 st December, 2015 & 1 st January, 2016	
CPRI sample code no(s).	SC15S1392	
Particulars of tests conducted	Verification of the short-circuit withstand strength	
Test in accordance with Standard / specification	Sub-clause 8.2.3 of IS 8623 (Part 1):1993 / IEC Pub 439-1 (1985) (Reaffirmed 2004)	
Sampling plan	Not applicable	
Customer's requirement	50 kA rms for 1.0 s & 105 kA peak on phase bus-bars	
Deviations if any	Nil	
Name of the witnessing persons	None	
Customer's representative	Mr. Nagabhushana S.N, Proprietor, Mr. Vanaraju & Mr. Halappa	
Other than customer's representatives	None	
Test subcontracted with address of the laboratory	None	
Documents constituting this report (In words)	None	
Number of sheets	Five	
Number of oscillograms	Two	
Number of graphs	Nil	
Number of photos	Two	
Number of test circuit diagrams	Two	
Number of drawings	Three	


(H.S.Lokeshappa)
Test Engineer




(Swaraj Kumar Das)
Joint Director

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Dated: 8th January, 2016

Description of sample tested (ratings as assigned by the manufacturer)

Test sample	Low-voltage switchgear and controlgear assembly- LT Panel
Type	Indoor
Designation	---
Serial number	MSG-001-2015/16
Rated voltage	415 V
Rated insulation voltage	660 V
Rated current	3200 A
Rated frequency	50 Hz
Number of phases	Three & neutral
Rated short-time withstand current & peak withstand current	50 kA rms for 1.0 s & 105 kA peak on phase bus-bars & 30 kA rms for 1.0 s & 63 kA peak on neutral bus-bar

Documents attached to this report

Oscillogram number(s)	SC15713A.S01 & SC15713A.S02
Photo number(s)	SC15713A.PB1 & SC15713A.PA1
Test circuit diagram number(s)	CRTL/SC/STC-04A & CRTL/SC/STC-02A
Drawing number(s)	MSG-01/15-16/01GA Sheet No.01 OF 03 Rev No.00, MSG-01/15-16/01GA Sheet No.02 OF 03 Rev No.00 & MSG-01/15-16/01GA Sheet No.03 OF 03 Rev No.00


Test Engineer

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SCHEDULE OF TESTS

VERIFICATION OF THE SHORT-CIRCUIT WITHSTAND STRENGTH (SUB-CLAUSE 8.2.3)

TEST CONDITIONS

Source Short-circuit generator

Phase

Test on phase bus-bars Three

Test on neutral bus-bar Single

Frequency 50 Hz

Test sample

Condition before test In clean and new condition; end of vertical bus-bars connected to source.

Body/Enclosure

2mm thick CRCA sheet, isolated from earth and connected to the source neutral through a fine-wire fuse (FWF) of diameter 0.1mm and length of 50mm in series with a 2.0 ohms resistor

Test details

Test circuit drawing number

CRTL/SC/STC-04A

Test on phase bus-bars

CRTL/SC/STC-02A

Test on neutral bus-bar

On the end of the horizontal bus-bars

Short-circuit applied

Grounded

Short-circuit point

Test results

Test on: Horizontal and Vertical phase bus-bars of the panel

Oscillogram Number	Current (kA)		Duration (s)	Ambient Temperature (°C)	Observations
	Peak	Rms			
SC15713A.S01	109.46 (Y-phase)	R – 50.12 Y – 49.05 B – 48.38 Average: 49.18*	1.08	28.4	During test: No abnormality After test: Fine-wire fuse intact.

*Equivalent to 51.11 kA rms for 1.0 s

Test on: Horizontal and vertical neutral bus-bar of the panel with nearest phase bus-bar as return conductor

Oscillogram Number	Current (kA)		Duration (s)	Ambient Temperature (°C)	Observations
	Peak	Rms			
SC15713A.S02	66.72	29.30**	1.06	28.4	During test: No abnormality After test: Fine wire fuse intact.

**Equivalent to 30.17 kA rms for 1.0 s


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VERIFICATION OF THE DIELECTRIC PROPERTIES

Condition of the sample: As after the verification of the short-circuit withstand strength test

Test procedure	Observations
A power frequency voltage of 2.5 kV rms for 60 s was applied between:	
1. All live parts connected together and enclosure	Withstood
2. Each pole and all the other poles connected to enclosure	Withstood

Physical Inspection

Bus-bars : No visible damage or deformation
Supports : Intact

Remarks: The sample tested complies with sub-clause of the standard referred to.


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NOTE

- a) The Test results relate only to the item(s) tested.
- b) Publication or reproduction of this report 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 invalidate the test Report/Certificate.
- d) NABL has Accredited this laboratory as per ISO 17025-2005 standard, vide certificate no.T-0010 for the tests carried out.
- e) Any anomaly / discrepancy in the test report / Certificate should be brought to notice of CPRI within 45 days from the date of issue.

Additional Information:

This is not a certificate of rating. A certificate of rating is not issued as only limited tests as requested by the customer were carried out.

CPRI issues following types of reports/certificates:

Test Report:

The test report contains the record of the values of test parameters as obtained during testing, the physical condition of the sample during / after the test(s) and copy of oscillogram(s). Test report is issued when partial tests are performed as against the complete test requirement for proving specific ratings.

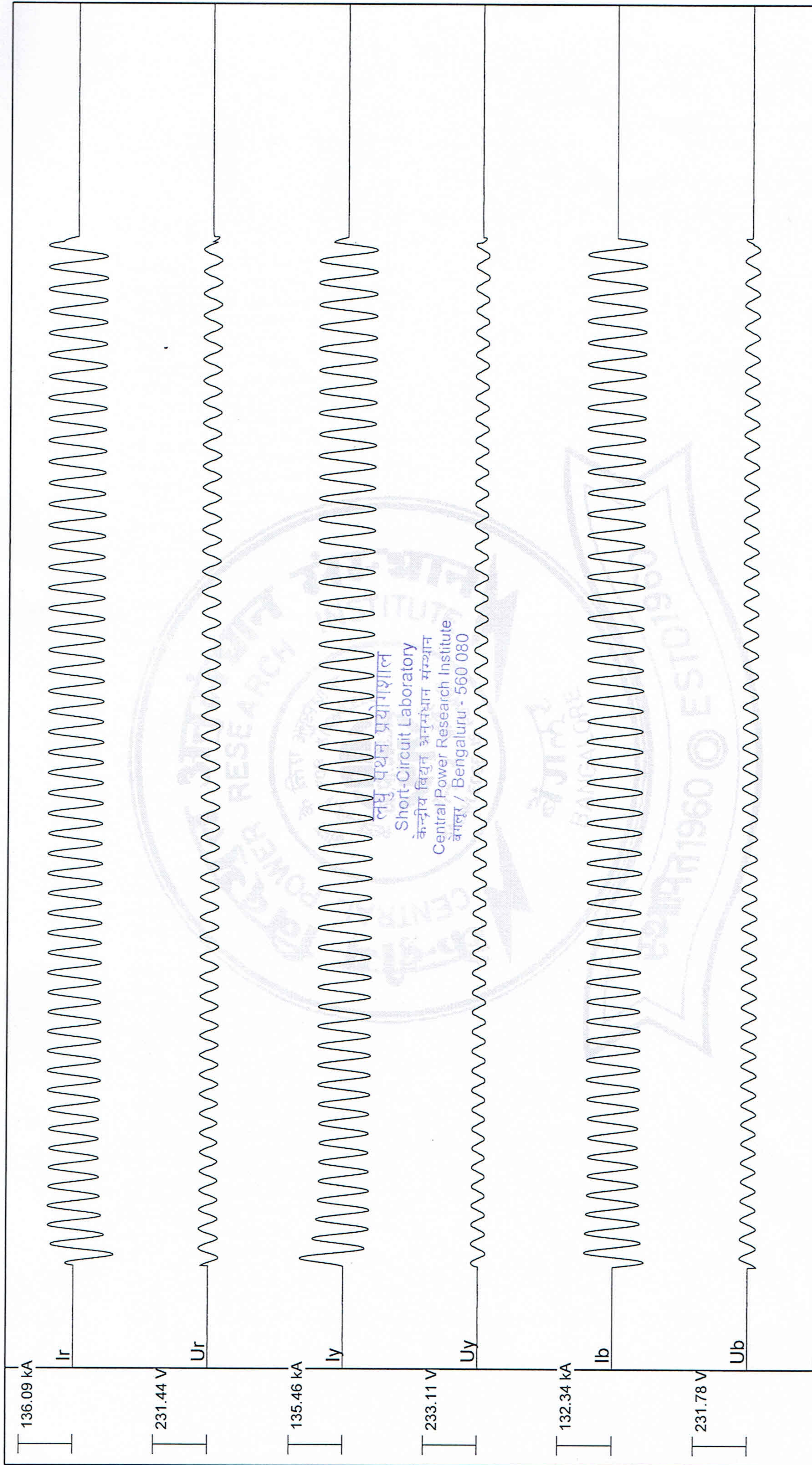
Sealed Certificate:

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

CPRI issues the following type test certificates based generally on STL Guidelines:

- I. Type test certificate of Short Circuit Performance.
- II. Type test certificate of Switching Performance.
- III. Type test certificate of Temperature Rise Performance.
- IV. Type test certificate of Dielectric Performance.
- V. Type test certificate of complete type test.

Test Engineer



लघु पथन प्रयोगशाला
 Short-Circuit Laboratory
 केंद्रीय विद्युत अनुसंधान संस्थान
 Central Power Research Institute
 बंगलूरु / Bengaluru - 560 080

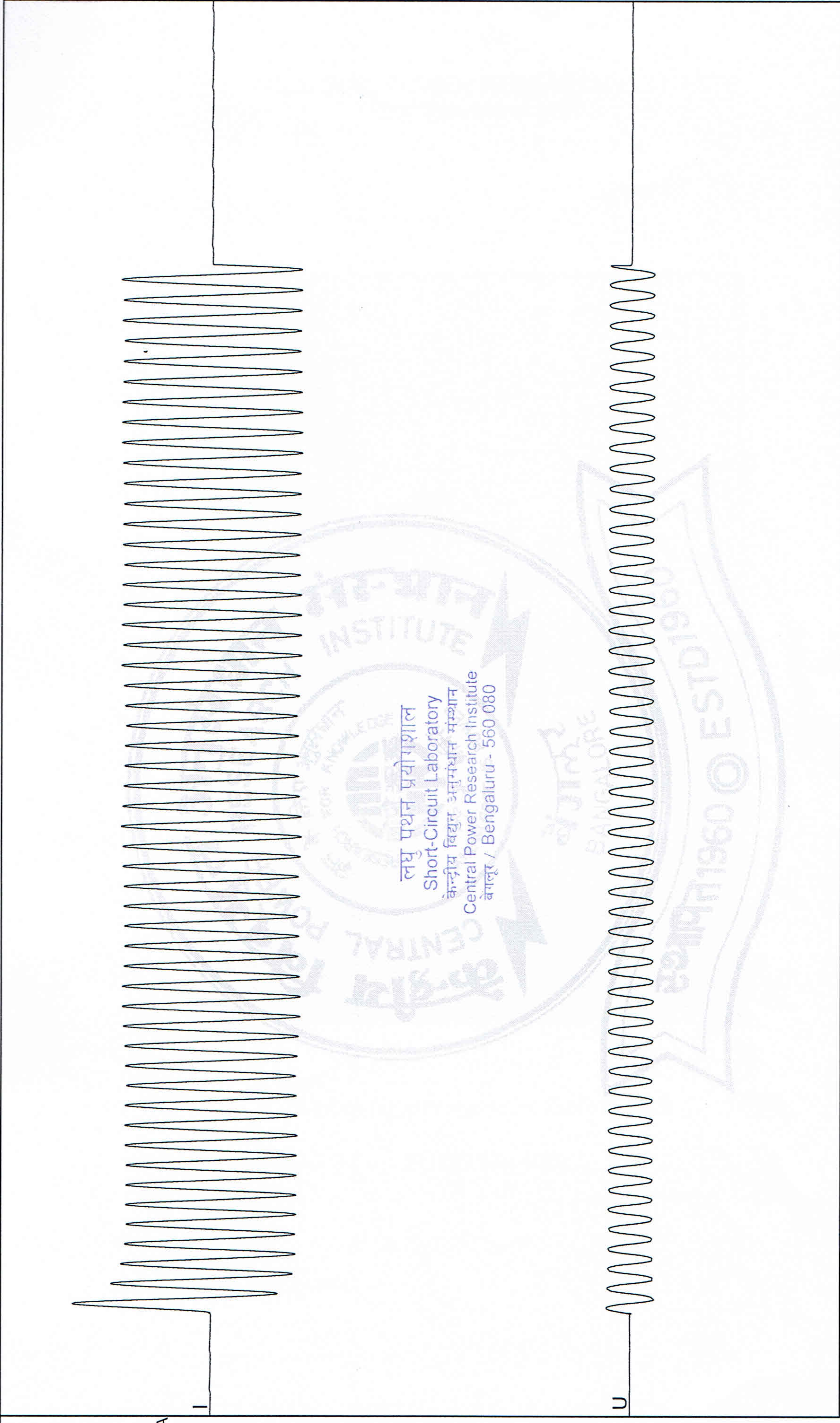
Handwritten Signature

TEST ENGINEER

170.10 milli seconds

Dt: 12/31/2015

SC15713A.S01



27.09 kA

92.58 V

170.10 milli seconds



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 Short-Circuit Laboratory
 केन्द्रीय बिद्युत अनुसंधान संस्थान
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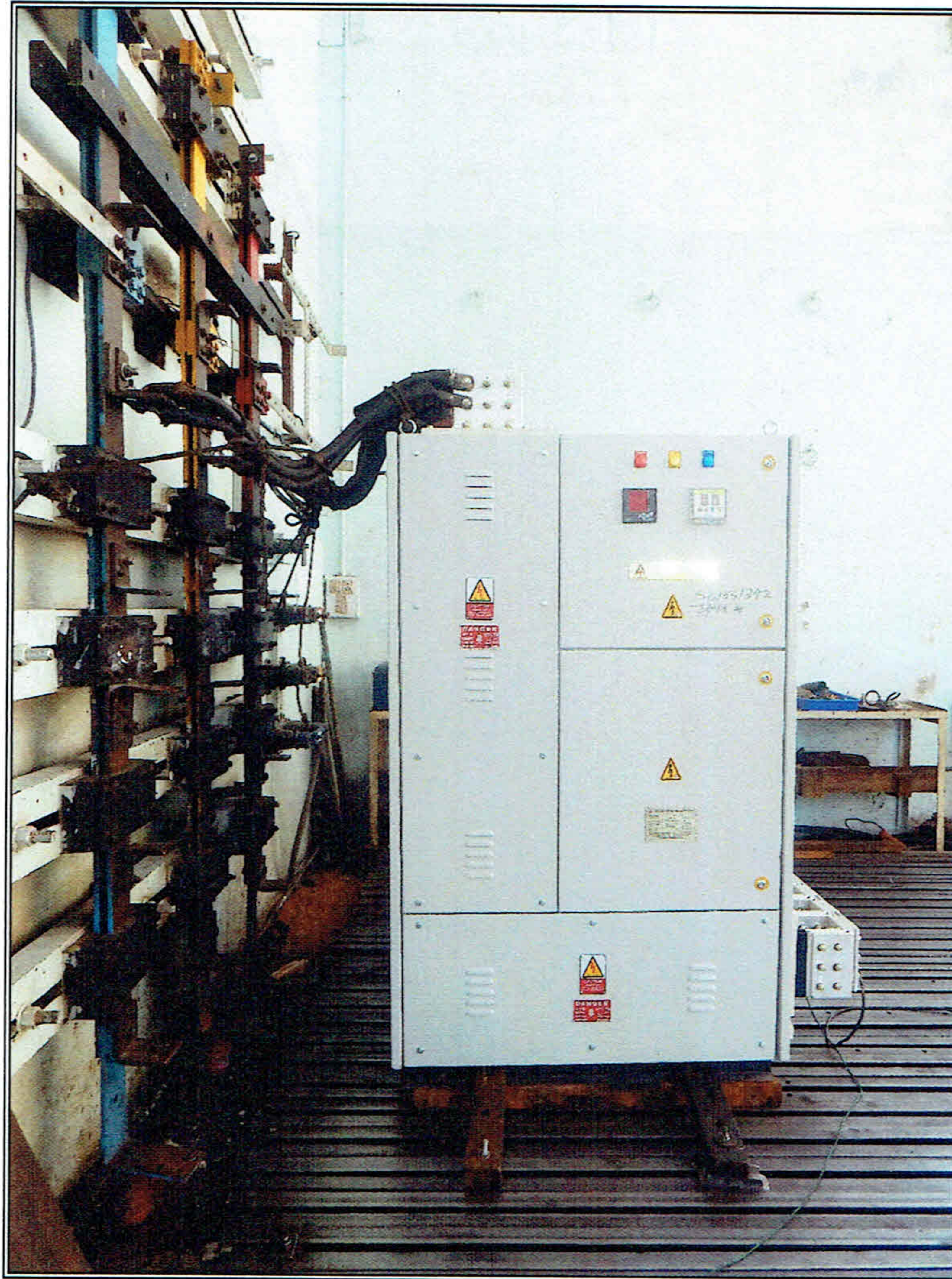
Handwritten signature
 TEST ENGINEER

SC15713A.S02 Dt: 12/31/2015

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Mounting arrangement (Before test)

SC15713A.PB1

Shashank
Test Engineer

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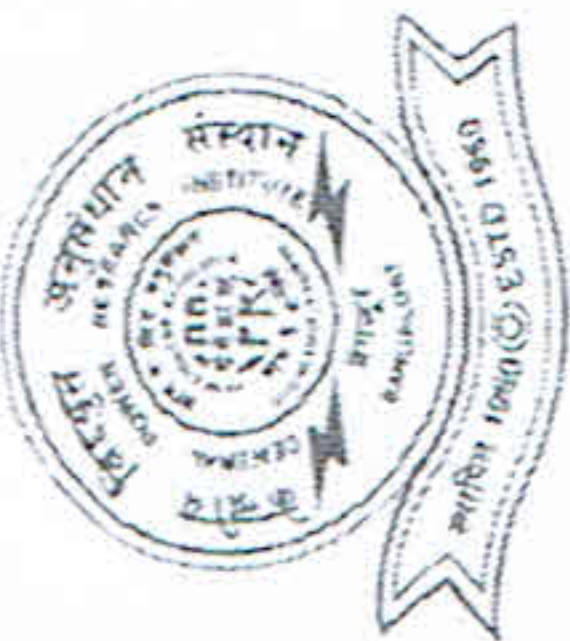
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Condition of the sample (After test)

SC15713A.PA1

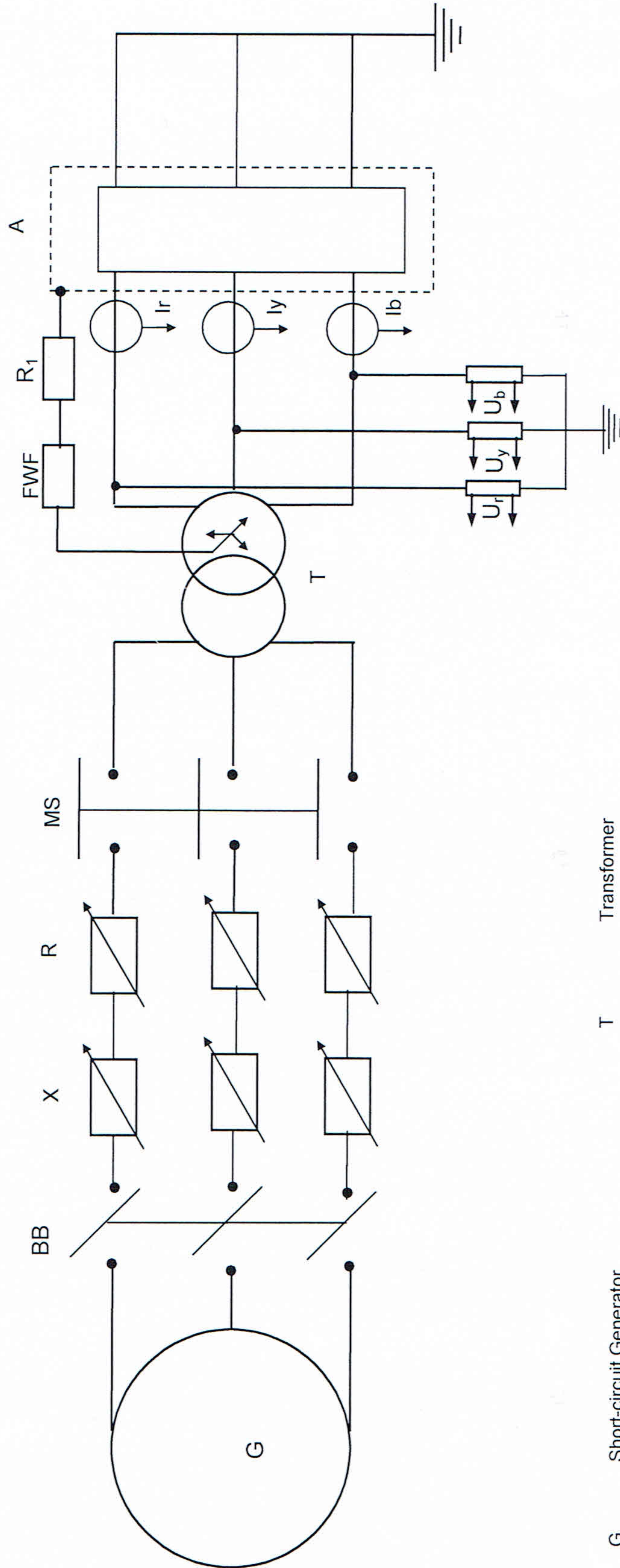
Shuseep
Test Engineer



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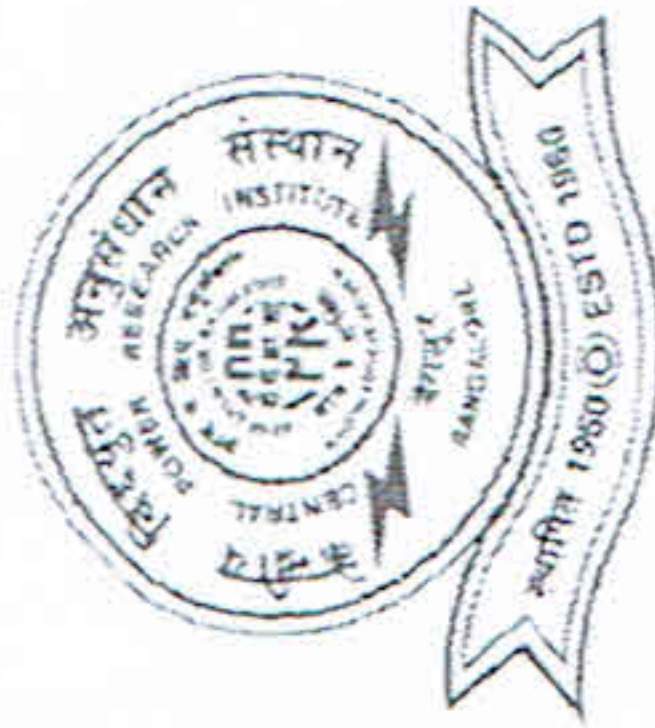
Schematic of main & measurement circuits - Three phase test

Circuit Number: CRTL/SC/STC-04A



G	Short-circuit Generator
BB	Back Up Circuit-breaker
X	Reactor
R	Resistor
MS	Make Switch
T	Transformer
FWF	Fine Wire Fuse
Ir, Iy & Ib	Current sensors
Ur, Uy & Ub	Voltage Sensors
R ₁	Current Limiting Resistor
A	Sample under test

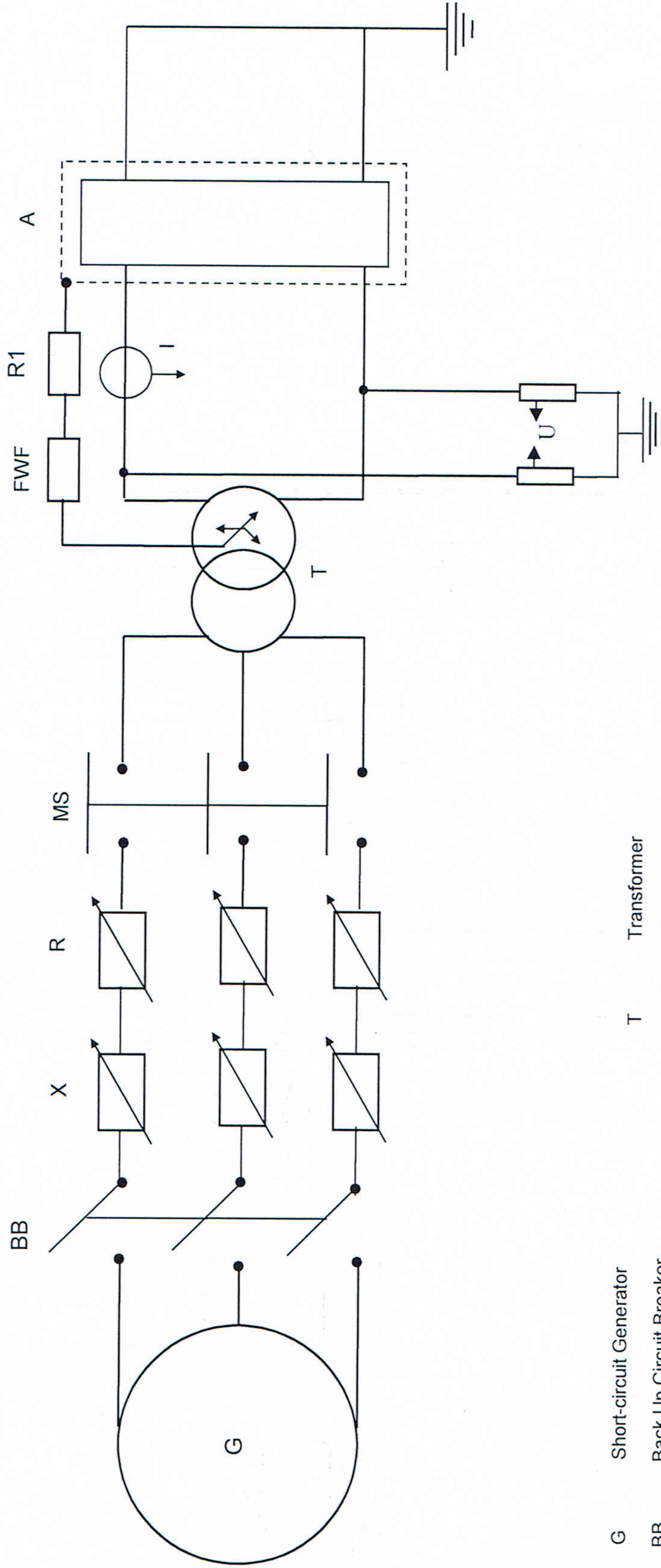
Shree
Test Engineer



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Schematic of main & measurement circuits - Single phase test

Circuit Number: CRTL/SC/STC-02A

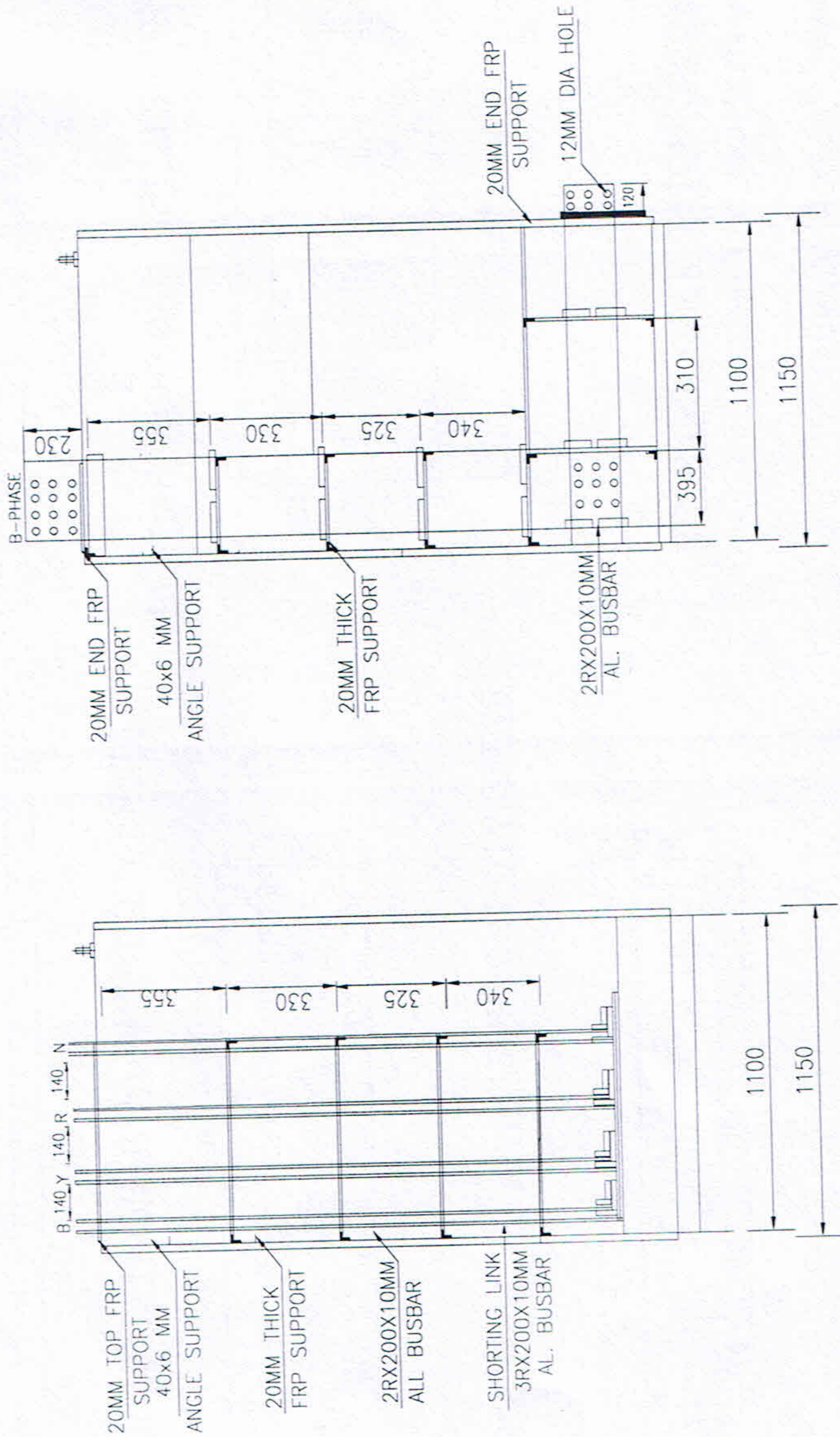


- G Short-circuit Generator
- BB Back Up Circuit Breaker
- X Reactor
- R Resistor
- MS Make Switch

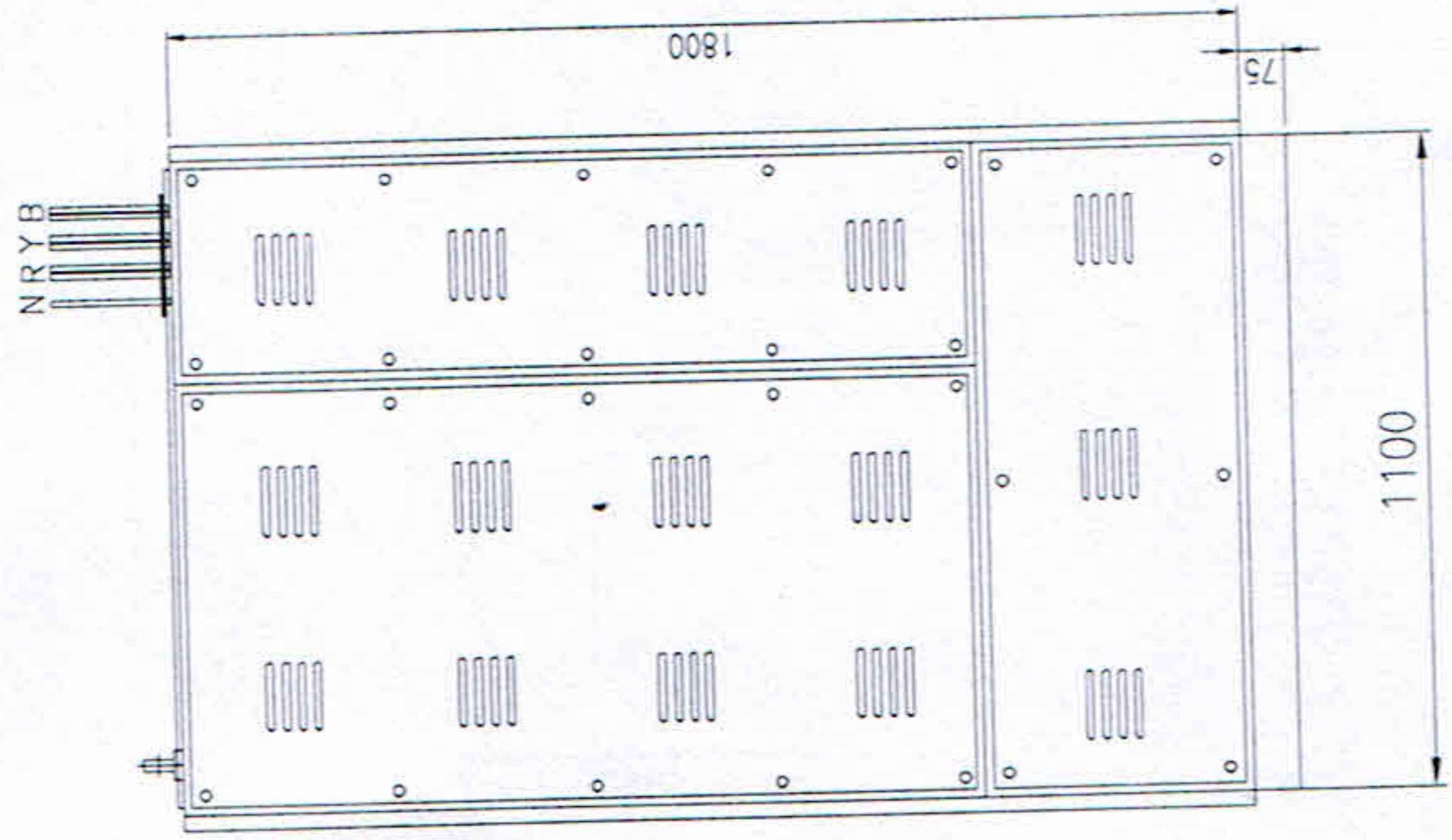
- T Transformer
- FWF Fine Wire Fuse
- R1 Current Limiting Resistor
- A Sample Under Test
- I Current Sensor
- U Voltage divider

Shobhit D.
Test Engineer

3200A, 415V LT PANEL

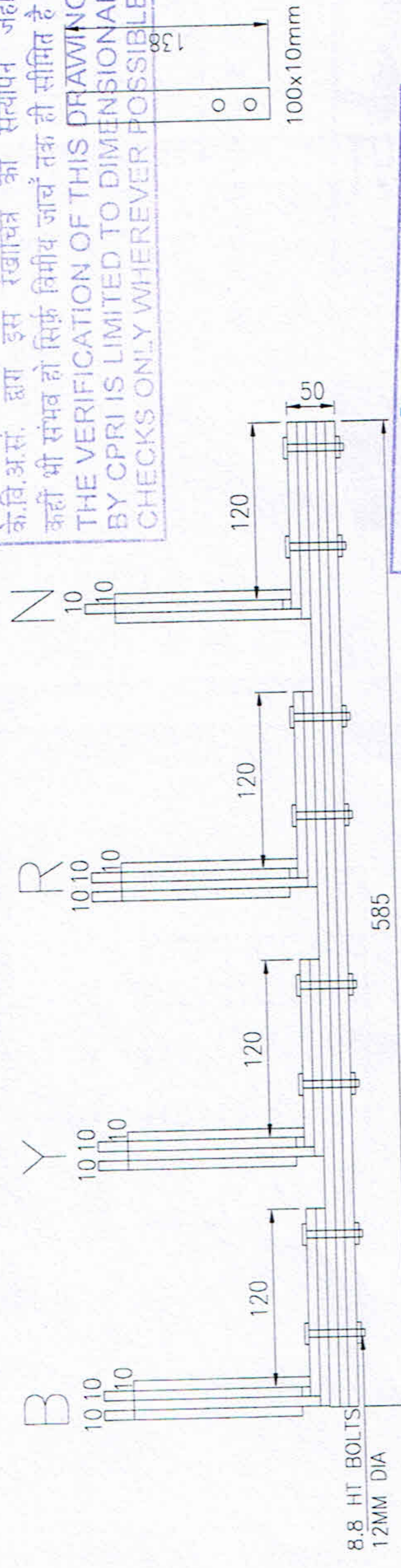


FRONT DOOR OPEN VIEW



BACK DOOR CLOSED VIEW

SECTIONAL VIEW SIDE DOOR OPEN



SHORTING LINK DIAGRAM

क्र.वि.अ.सं. द्वारा इस रेखाचित्र का सत्यापन जहाँ कहीं भी संभव हो सिक्रि निर्माय जाच तक ही सीमित है।
 THE VERIFICATION OF THIS DRAWING BY CPRI IS LIMITED TO DIMENSIONAL CHECKS ONLY WHEREVER POSSIBLE

रिपोर्ट क्रमांक.....SC.15.7.13A.....
 से संबंधित दस्तावेज
 Document Pertaining to
 Report No.....



Shreekanth
 परिक्षण अभियन्ता / Test Engineer
 ल.प. प्रयोगशाला / S. C. LAB
 सी. पी. आर. आई. / CPRI
 बेंगलूरु / Bengaluru

MILLENNIUM SWITCH GEAR
 No.45,46,3, 18th Cross, Vinayaka Layout,
 Ancharhalli, Main Road,
 BENGALURU-560 091, M-9845338498, Mail-millenniumswitchgear@gmail.com



FOR APPROVAL Name: N BUSHAN Date: 14.08.2015
 Description

Project: 3200A, 50KA FOR 1SEC		Drawing No. MSG/-01/15-16/01GA		Rev No. 00		Total Sh. 03	
Title: 3200A,415V LT pannel		SL: NO: MSG-001-2015/16		Sheet No. 02 OF 03		Contd. sh. -	
Drawn By: MOHAN		Checked By: N BUSHAN		Date: 14.08.2015		Scale: NTS	
Designed By: N BUSHAN		Projection		Projection		Projection	
Date: 14.08.2015		Date: 14.08.2015		Date: 14.08.2015		Date: 14.08.2015	
Date: 14.08.2015		Date: 14.08.2015		Date: 14.08.2015		Date: 14.08.2015	

