

सी पी आर आई  
भारत

**CPRI  
INDIA**

परीक्षण रिपोर्ट  
**TEST REPORT**



BY HAND/BY POST

केन्द्रीय विद्युत अनुसंधान संस्थान  
CENTRAL POWER RESEARCH INSTITUTE

स्विचगियर परीक्षण तथा विकास केन्द्र गोविन्दपुरा, भोपाल - 462023

SWITCHGEAR TESTING & DEVELOPMENT STATION GOVINDPURA BHOPAL- 462023

तार : स्विचपरीक्षण  
Gram : Powerresearch  
फेक्स (Fax) : 91755 2587774  
टेलिफोन (Telephone) : 0755-2586343  
दिनांक (Date): 22.10.2024

संदर्भ क्रमांक (Ref. No): 11(2)/2024/STDS/Stn.2/ 244

सेवा में / To,

एसके इंजीनियर्स इंडिया प्राइवेट लिमिटेड  
प्लॉट नंबर सी/21 और 71/2, आईआईडी सेंटर  
औद्योगिक एस्टेट. खोरधा. ओडिशा - 752057

SK Engineers India Private Limited  
Plot No .C/21 and 71/2, IID Centre  
Industrial Estate, Khordha , Odisha -  
752057

विषय (Sub.): - परीक्षण दस्तावेज (Test document)

**Final Report**

महोदय / Dear Sir,

हमारी प्रयोग शाला में ..... LT Panel ..... पर / के बीच

आपके - 15.10.2024 पर संचालित परीक्षण के संबंध में निम्नलिखित दस्तावेज संलग्न हैं।

Please find enclosed the following documents in respect of the test (s) conducted  
on (equipment) ... .. on/ from (dates) .... ..at our laboratory.

1:- टेस्ट रिपोर्ट नम्बर, Test report number.. CPRIBPLSTNBMISC24T0419

रिपोर्ट में असंगतियाँ यदि हो तो इस रिपोर्ट के जारी होने की तारीख से 45 दिन के अंदर लिखित रूप में हमारे ध्यान में लायी जाये ताकि आवश्यक संशोधन किया जा सके और इसके लिये रिपोर्ट की सभी मूल प्रतियाँ लौटाई जावें। कृपया नोट करें कि इस तारीख के बाद प्राप्त अनुरोधों पर कोई कारवाई नहीं की जाएगी।

Any discrepancies in the report must be brought to our notice in writing within 45 days of the date of issue of this report for effecting necessary corrections for which all the original copies of the reports must be returned. Please note that request received beyond this date will not be entertained.

दस्तावेजों की प्राप्ति की पावती भेजें।

Please acknowledge receipt of the documents.

सधन्यवाद Thanking you,

भवदीय (Yours faithfully)

प्रयोगशाला प्रभारी  
LABORATORY INCHARGE

संलग्न : उपरोक्त  
Encl. :as above



# 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 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 - 462023

GOVINDPURA BHOPAL - 462023

दूरभाष/Telephone +91 (0) 755 - 2586682 फैक्स/Fax +91 (0) 755-2587774

# CENTRAL POWER RESEARCH INSTITUTE

## TEST REPORT



**CPRI**

Test Report Number : CPRIBPLSTNBMISC24T0231 Date: 17 October 2024

Name and Address of the Customer : SK Engineers India Private Limited  
Plot No .C/21 and 71/2, IID Centre  
Industrial Estate, Khordha , Odisha - 752057

Name and Address of the Manufacturer : SK Engineers India Private Limited  
Plot No .C/21 and 71/2, IID Centre  
Industrial Estate, Khordha , Odisha - 752057

Particulars of Sample Tested : 415Vac, 6000A PCC Cum MCC LT Panel

Condition of sample(s) on receipt : New

Type : PCC/MCC/ACDB/DCDB

Description of test sample : Refer sheet 2 of 6

Serial Number : SKEIPL/14/08/24/2374

Number of Samples Tested : One

Date(s) of Test(s) : 15 October 2024

CPRI Sample code Number(s) : STNBMISC24S0355

Particulars of test(s) conducted : Verification of the short circuit withstand strength test.

Test(s) in accordance with Standard/Specification : As per customer's requirement and procedure generally followed as per CI.10.11.5.3.3 & 10.11.5.3.5 of IS/IEC:61439-1, 2020 & IS/IEC:61439-2, 2020

Sampling Plan : Nil

Customer's Requirement : SCWS test to be conducted on main busbars only.

Deviations, if any : SCWS test was conducted on main busbars only.

Name of the witnessing persons  
Customer's representative : Mr. Shivam Thakur

Other than Customer's representatives : Nil

Test subcontracted with and address of the laboratory : Nil

Documents constituting this report (in words)

Number of Sheets : Six


Number of Oscillogram(s) : Two

Number of Graph(s) : Nil

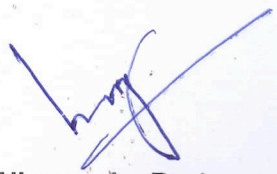
Number of Photograph(s) : One

Number of Test Circuit Diagram(s) : Two

Number of Drawing(s) : Three

  
(Prabakaran T)  
Test Engineer



  
(Himangshu Roy)  
Head of Division  
Reviewed and Authorized by

# CENTRAL POWER RESEARCH INSTITUTE

## TEST REPORT



**CPRI**


Test Report Number : CPRIBPLSTNBMISC24T0231 Date: 17 October 2024

### SUMMARY OF TESTS CONDUCTED

1. Tests conducted : Verification of short circuit withstand strength
2. Rating for which tested : 70 kArms for 1.0 second with initial peak of 154 kApk
3. Schedule of tests

Test conducted	Clause Numbers	Sheet
Verification of short circuit withstand strength test (Incoming circuit and main busbars & Neutral conductor)	As per customer's requirement	5 of 6

4. Oscillogram Numbers : CPRIBPLSTNBMISC24T0231S002  
CPRIBPLSTNBMISC24T0231S004
5. Graph Numbers : Nil
6. Photograph Numbers : CPRIBPLSTNBMISC24T0231P01
7. Test Circuit Diagram Numbers : OLTS/TCD-STC-01  
OLTS/TCD-STC-02
8. Drawing Numbers : Refer sheet 4 of 6

  
(Prabakaran T)  
Test Engineer

# CENTRAL POWER RESEARCH INSTITUTE

## TEST REPORT

Test Report Number : CPRIBPLSTNBMISC24T0231 Date: 17 October 2024



### LIST OF DRAWINGS

**CPRI**

#### 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 Number	Revision Number
1.	SKEIPL/STC/BPL/01	1 of 3	00
2.	SKEIPL/STC/BPL/01	2 of 3	00
3.	SKEIPL/STC/BPL/01	3 of 3	00

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.

(Prabakaran T )  
Test Engineer

# CENTRAL POWER RESEARCH INSTITUTE

## TEST REPORT



Test Report Number : CPRIBPLSTNBMISC24T0231 Date: 17 October 2024

### VERIFICATION OF THE SHORT CIRCUIT WITHSTAND STRENGTH

**CPRI**

Test conducted : Verification of the short circuit withstand strength  
Test Source : Station Transformers  
Number of phases : Three & Neutral  
Frequency : 50 Hz  
Condition Test Sample before test : New  
Test connections : Connected to source  
Safety parameter : Test sample was insulated from earth and connected to the neutral of the supply via a fusible element consisting of a copper wire 0.8 mm in diameter and at least 50 mm long for detection of fault.  
Transformer neutral & short circuit point : Refer Test Circuit Diagram No. OLTS/TCD-STC-01 for three phase test and OLTS/TCD-STC-02 for single phase test.

Test results:

Oscillogram Number	Peak kApk	RMS in kA			Duration (second)	Equivalent current in kArms for said duration
		Ir	Iy	Ib		
CPRIBPLSTNBMISC24T0231S002	159.40 (R-phase)	72.50	72.40	70.72	1.0	72.50
(Three phase Short circuit withstand strength test conducted on busbars consisting of HBB+VBB)						
CPRIBPLSTNBMISC24T0231S004	89.70	42.58			1.0	42.58
(Single phase short circuit withstand strength test conducted on neutral & nearest phase of busbars consisting of HBB+VBB)						

#### Observations

During test : No abnormality observed.  
After test : No abnormality observed in visual inspection. Fine wire fuse was found intact. All busbars & supports were found intact.

Remarks : After test, the sample withstood HV test at 1.0kVrms for sixty second.

Conclusion : The sample tested complies with the requirement of the customer for the test conducted.

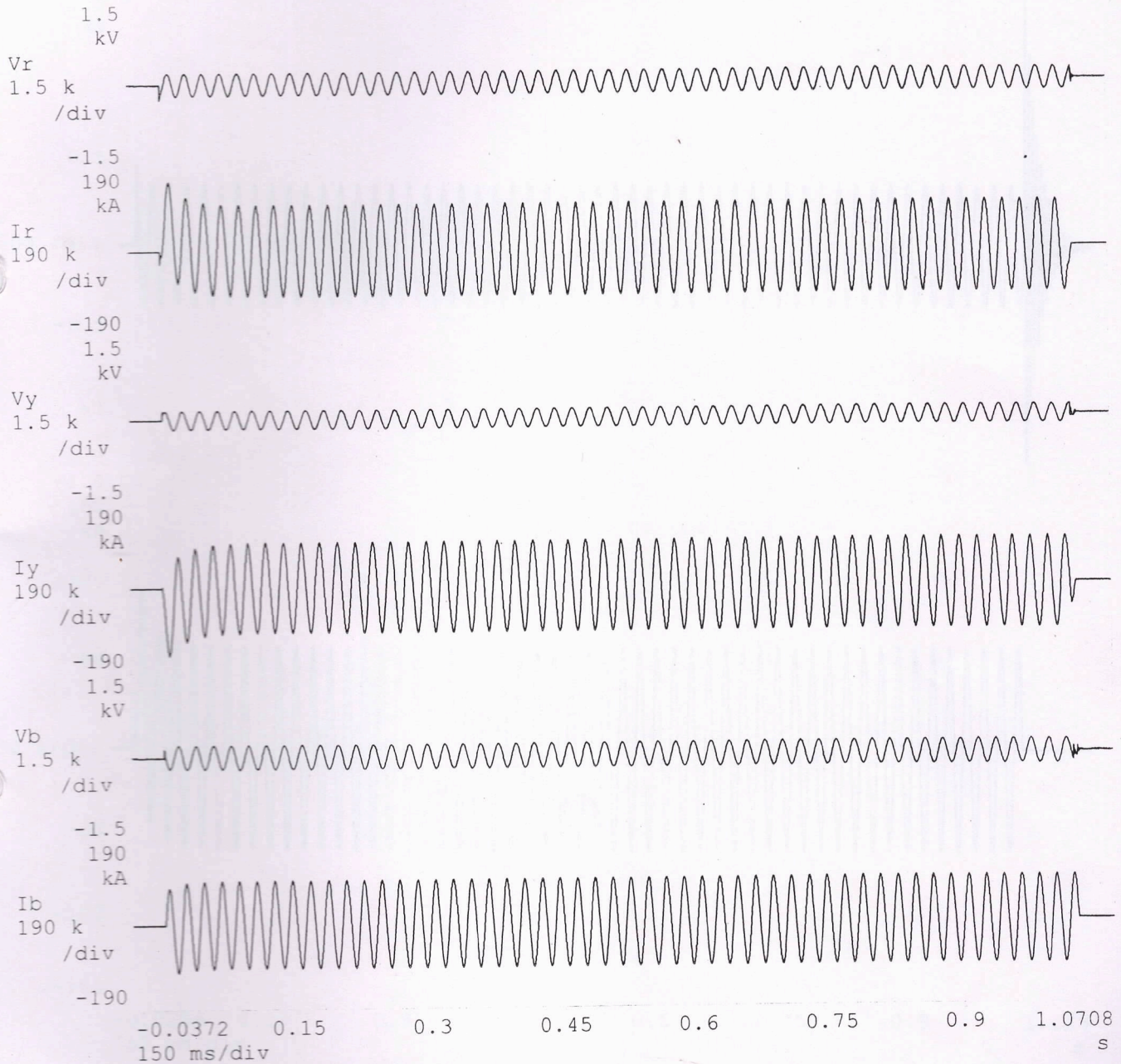
(Prabakaran T)  
Test Engineer

# Central Power Research Institute (Member of STL)



Test Report Number : CPRIBPLSTNBMISC24T0231

## TEST RESULTS



Oscillogram Number : CPRIBPLSTNBMISC24T0231S002

Test Engineer

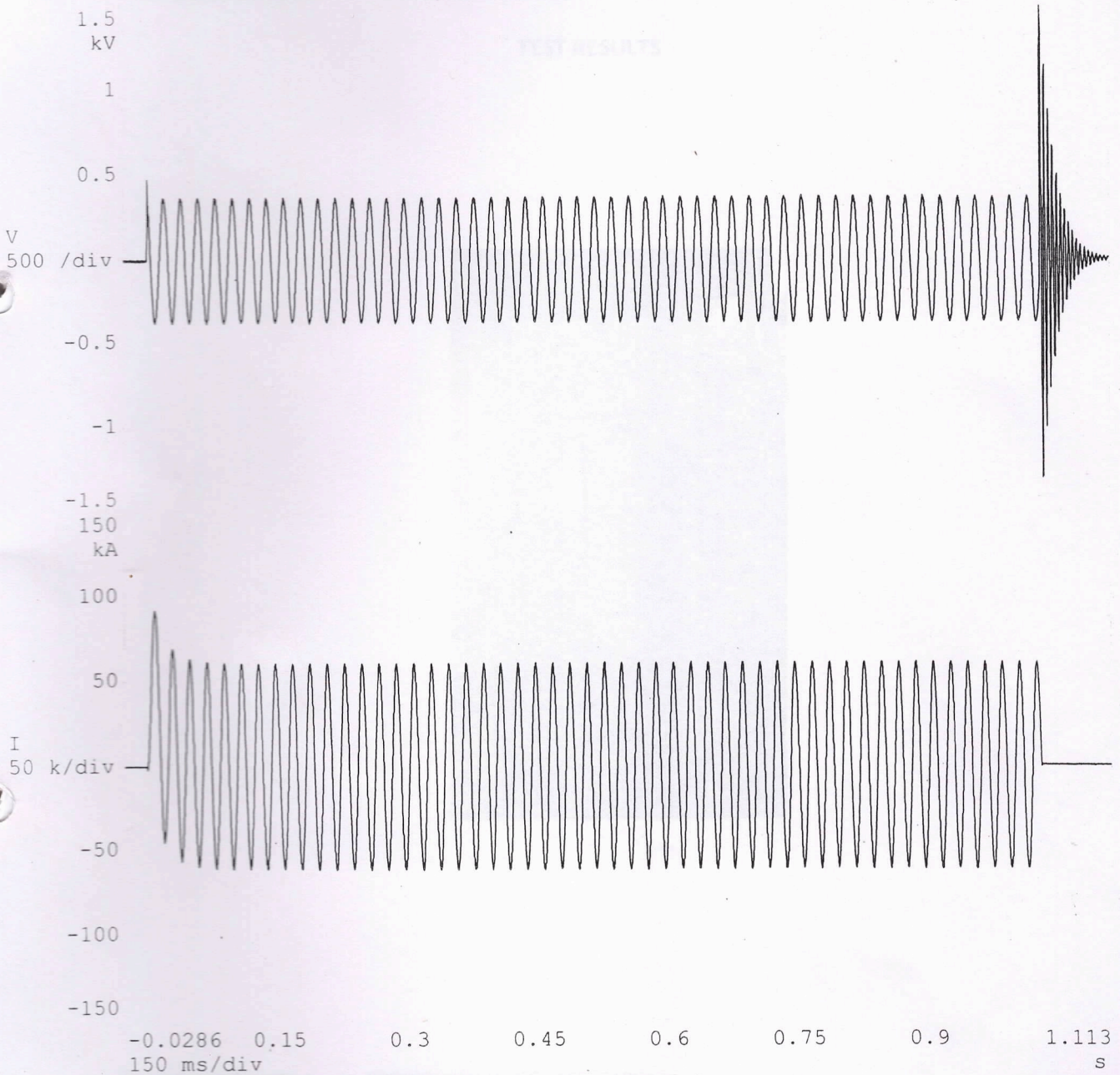
SWITCHGEAR TESTING & DEVELOPMENT STATION  
GOVINDPURA, BHOPAL-462023, INDIA  
Phone: +91(0) 755 2586682 Fax: + 91(0) 755 2587774

Central Power Research Institute  
(Member of STL)



Test Report Number : CPRIBPLSTNBMISC24T0231

TEST RESULTS



Oscillogram Number : CPRIBPLSTNBMISC24T0231S004

Test Engineer

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

**CENTRAL POWER RESEARCH INSTITUTE  
(MEMBER OF STL)**



**TEST REPORT**

Test Report Number : CPRIBPLSTNBMISC24T0231

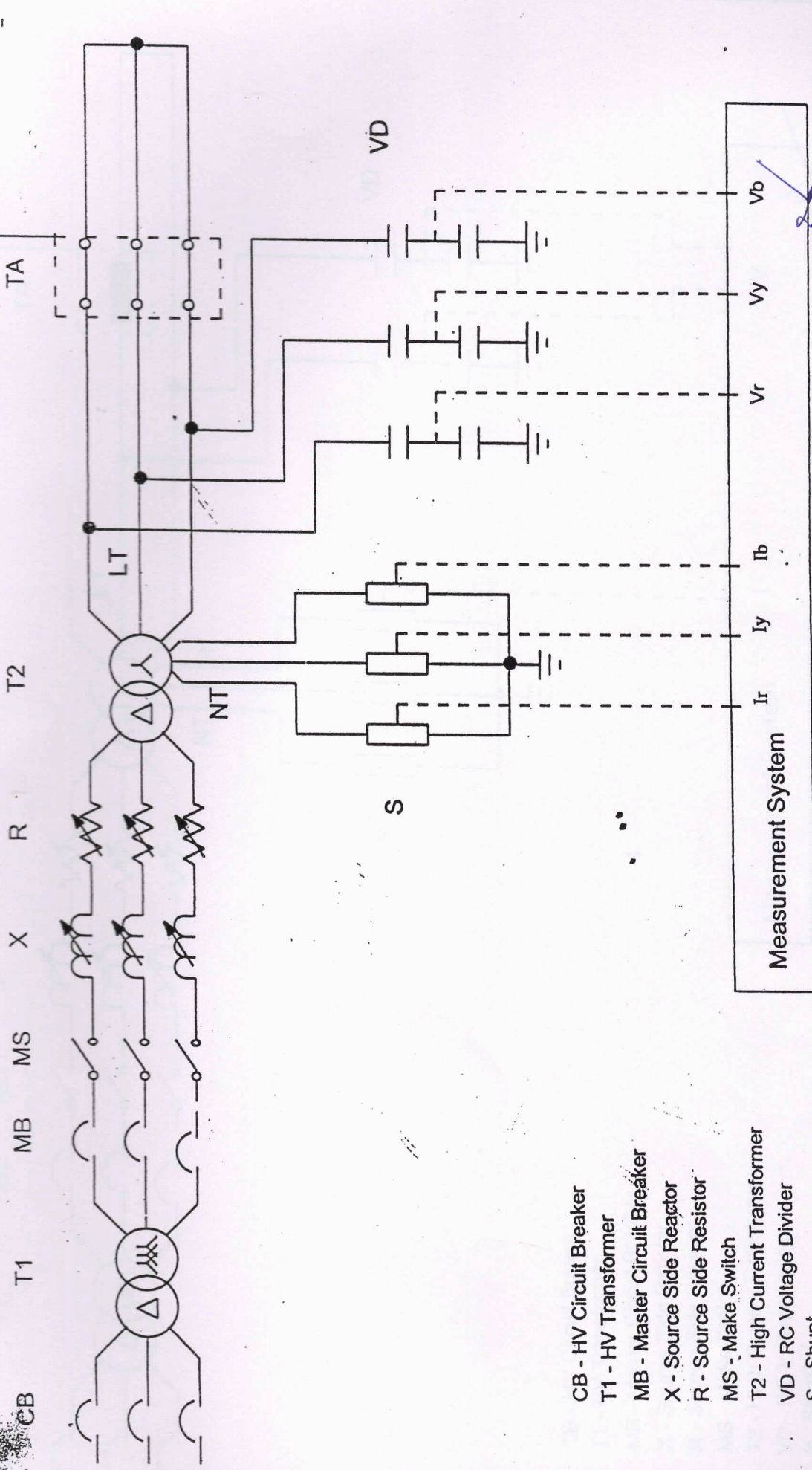
**TEST RESULTS**



Photograph Number : CPRIBPLSTNBMISC24T0231P01

Test Engineer

CPRI Bhopal



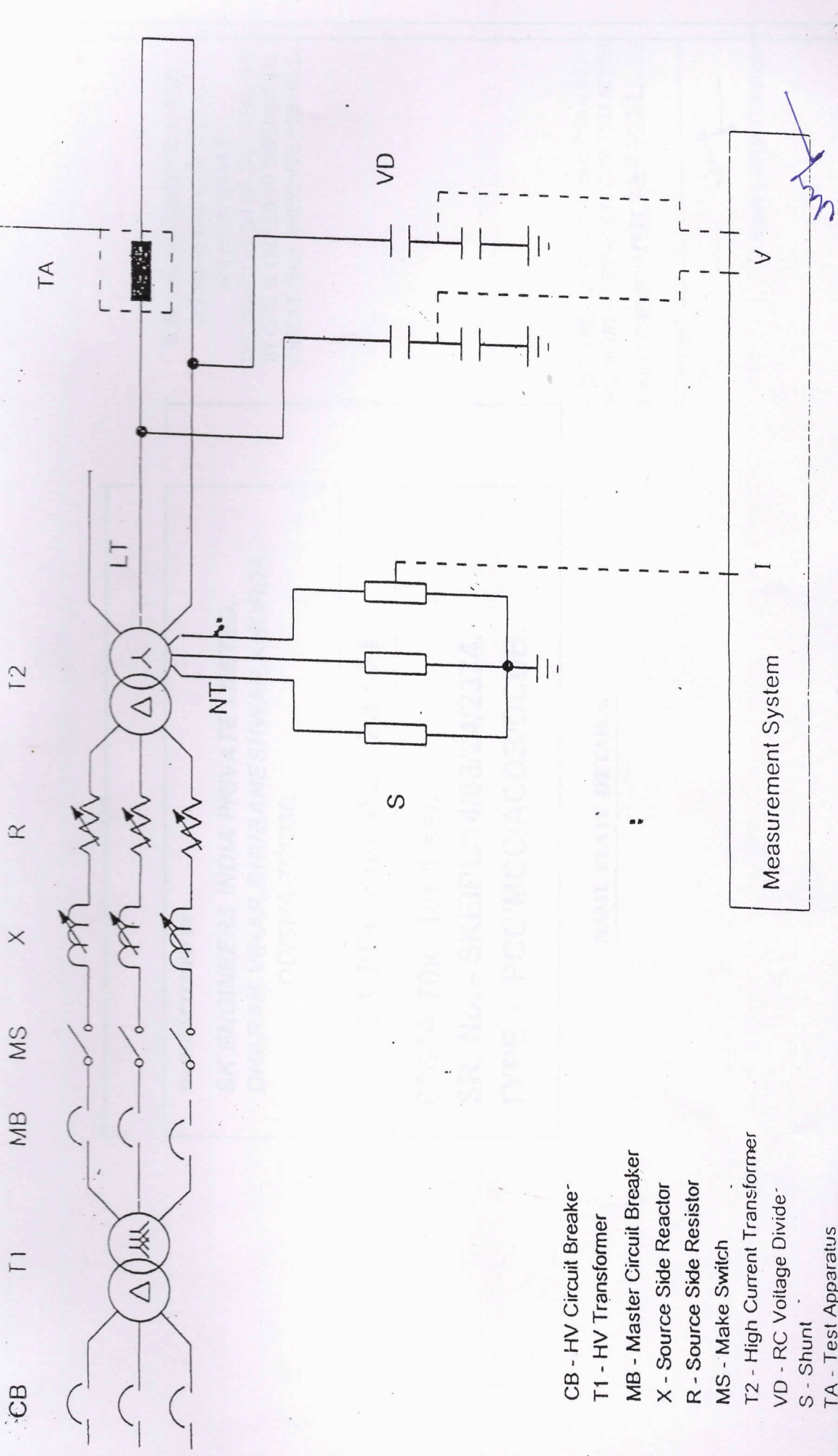
- CB - HV Circuit Breaker
- T1 - HV Transformer
- MB - Master Circuit Breaker
- X - Source Side Reactor
- R - Source Side Resistor
- MS - Make Switch
- T2 - High Current Transformer
- VD - RC Voltage Divider
- S - Shunt
- TA - Test Apparatus
- r - Current Limiting Resistor
- FWF - Fine Wire Fuse
- LT - Line terminals of the secondary windings of T2
- NT - Neutral terminals of the secondary windings of T2

Measurement System

TEST ENGINEER

OLTS/TCDC-STC-01

CPRI Bhopal



- CB - HV Circuit Breaker
- T1 - HV Transformer
- MB - Master Circuit Breaker
- X - Source Side Reactor
- R - Source Side Resistor
- MS - Make Switch
- T2 - High Current Transformer
- VD - RC Voltage Divide
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- r - Current Limiting Resistor
- FWF - Fine Wire Fuse
- LT - Line terminals of the secondary windings of T2
- NT - Neutral terminals of the secondary windings of T2

TEST ENGINEER

OLTS/ICD-STC-02

Measurement System

*[Handwritten signature]*

150

MANUFACTURED BY:

**SK ENGINEERS INDIA PRIVATE LIMITED.  
DHARAM VIHAR, BHUBANESHWAR, KHORDA,  
ODISHA-751030.**

**LT PCC cum MCC PANEL**

**6000A 70ka for 1 sec.  
SR. No. - SKEIPL/14/08/24/2374.  
TYPE - PCC/MCC/ACDB/DCDB.**

NAME PLATE DETAILS.

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

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

110

यह रेखा चित्र सीपीआरआई के परीक्षण प्रतिवेदन क्र. दिनांक से संबंधित है।  
THIS DRAWING PERTAINS TO CPRI TEST REPORT

क्र./No. CPRIPLSTNB: MISC 24/2374

दिनांक/Dated .....

परीक्षक इंजीनियर / Test Engineer

MANUFACTURED BY:



**Engineers India Pvt Ltd**

Plot no - C/21 and 71/2, IID Center,  
Industrial Estate, Khorda, Odisha-752057.

TEST DETAILS

Short Circuit withstand testing  
for LT PCC PANEL  
for 6000 A 70 ka for 1 sec.

RATED VOLTAGE : 415 VAC.

CURRENT : 6000 A

TYPE : MCC/PCC LT PANEL

DESIGNATION : MAIN SWITCHBOARD PANEL

SCALE

NTS



DATE

05-10-2024

REV

00.

DRAWN

APPROVED

SR. NO

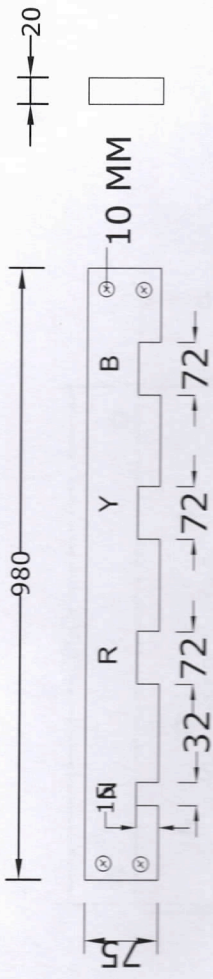
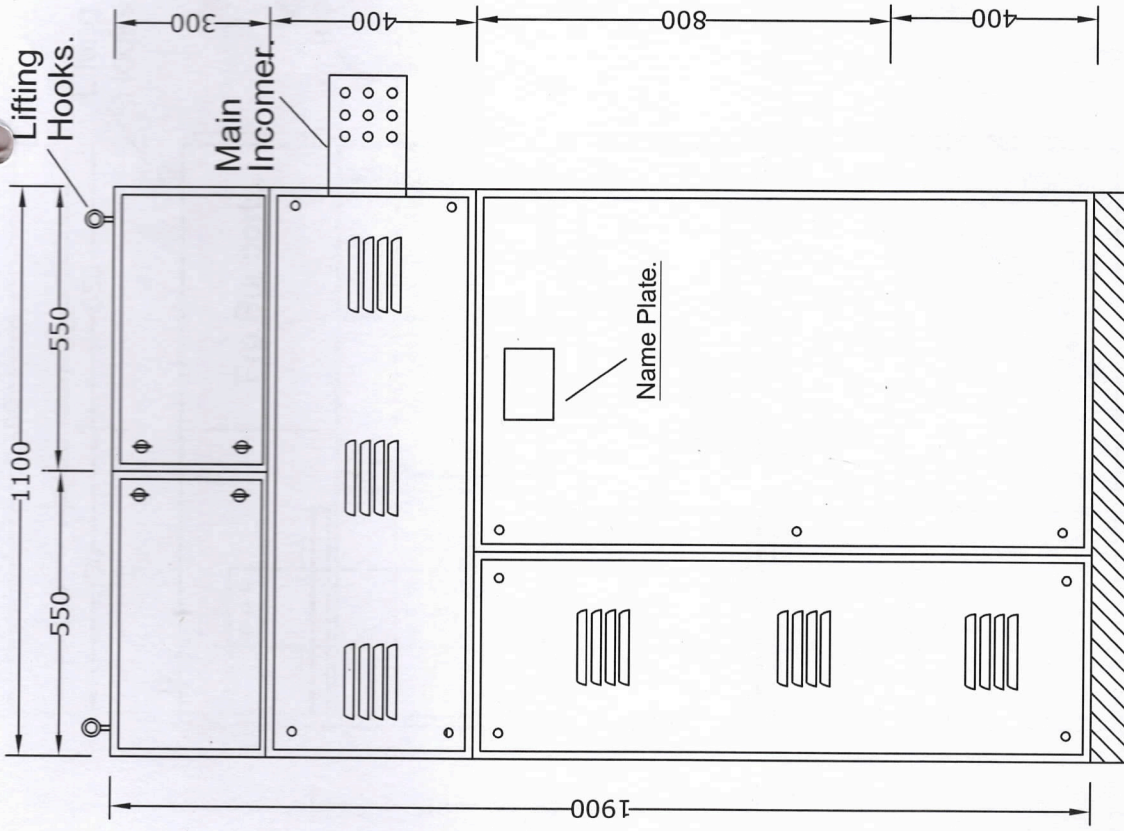
DRG.NO

Mr. Deepak

Mr. Tapas Das.

SKEIPL/14/08/24/2374

SKEIPL/STC/IBPL/01.



FRP SUPPORTS QUANTITY-12 NOS.

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

**PANEL FABRICATION : 2 MM CRCA.** VERIFICATION OF THIS DRAWING  
BY CPRI IS LIMITED TO DIMENSIONAL  
CHECKS ONLY WHEREVER POSSIBLE.

**BUS BAR SIZE:-**

**(A) HORIZONTAL BUSBAR:-**

PHASE : 4:150x10x 1080 mm length AL.  
NEUTRAL : 2:150x10x 1080 mm length AL.

**(B) VERTICAL BUS BARS**

PHASE : 4:150x10x1050 mm length AL.  
NEUTRAL : 2:150x10x1050 mm length AL.

**FRP SUPPORTS**

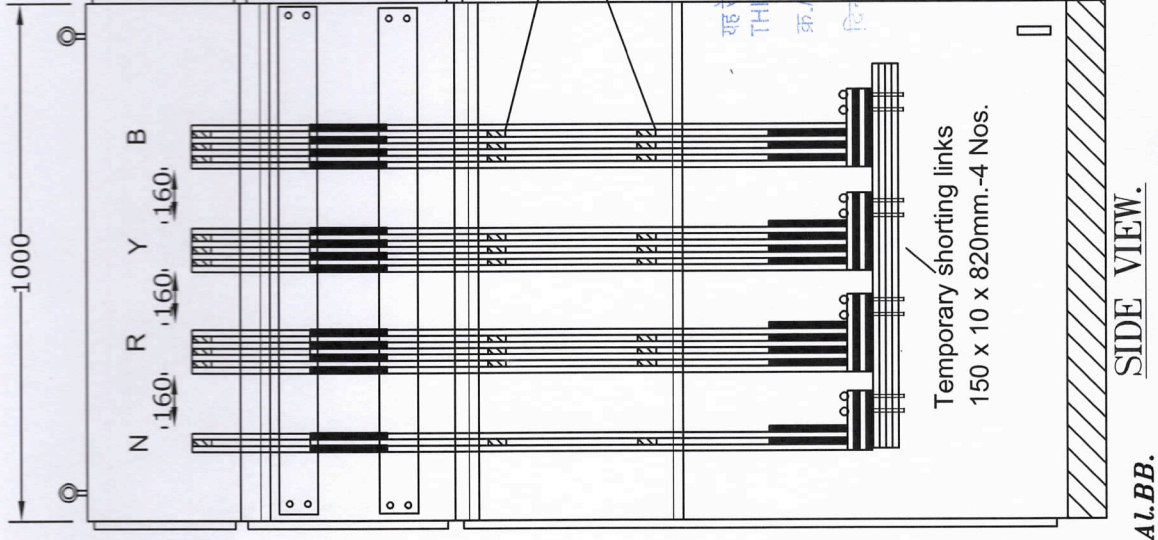
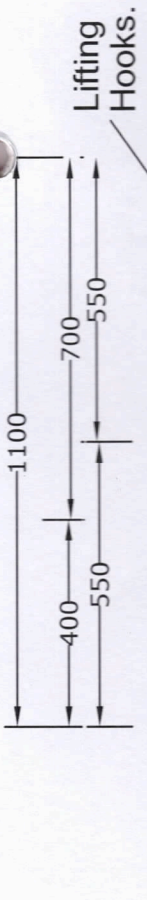
Horizontal - 3 Sets  
Vertical - 3 Sets

यह रेखा चित्र सीपीआरआई के परीक्षण प्रतिवेदन क्र. दिनांक से संबंधित है।  
THIS DRAWING PERTAINS TO CPRI TEST REPORT  
क्र./No. CPRI/PLST/NET/15/24/T02/31

*[Signature]*

परीक्षण इंजीनियर / Test Engineer

<b>MANUFACTURED BY:</b> <b>SK Engineers India Pvt Ltd</b> <small>Commitment for our concern... An ISO 9001:2015 Certified Company</small> Plot no - C/21 and 71/2, IID Center, Industrial Estate, Khorda, Odisha-752057.	<b>TEST DETAILS</b>		<b>RATED VOLTAGE : 415 VAC.</b>	<b>SCALE</b>	<b>SHEET</b>	<b>DATE</b>	<b>DRAWN</b>	<b>Mr. Deepak</b>
	<b>Short Circuit withstand testing for LT PCC PANEL for 6000 A 70 ka for 1 sec.</b>		<b>CURRENT : 6000 A</b>	NTS	2 OF 3	05-10-2024	APPROVED	<b>Mr. Tapas Das.</b>
			<b>TYPE : MCC/PCC LT PANEL</b>			<b>REV</b>	<b>SR. NO</b>	<b>SKEIPL/14/08/24/2374</b>
			<b>DESIGNATION : MAIN SWITCHBOARD PANEL</b>			<b>00.</b>	<b>DRG.NO</b>	<b>SKEIPL/STC/IBPL/01.</b>



कै.वि.अ.सं. द्वारा रेखाचित्र का सत्यापन  
जहाँ तक भी संभव हो सिर्फ विनीय  
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THIS DRAWING PERTAINS TO CPRI TEST REPORT  
क्र. No. CPRI/PLSTNB/15024/2021  
दिनांक/Dated: \_\_\_\_\_

परीक्षण इंजीनियर / Test Engineer

Tolerance - 3 %  
All Dimensions in mm

Earthing  
40mm x 6 mm AL.BB.

Rated Voltage : 415 VAC.  
Current : 6000 A  
Type : MCC/PCC LT Panel  
Designation : Main Switchboard Panel

MANUFACTURED BY: **SK Engineers India Pvt Ltd**  
An ISO 9001:2015 Certified Company  
Plot no - C/21 and 71/2, IID Center,  
Industrial Estate, Khorda, Odisha-752057.

TEST DETAILS  
Short Circuit withstand testing  
for LT PCC PANEL  
for 6000 A 70 ka for 1 sec.

RATED VOLTAGE : 415 VAC.	SCALE	SHEET	DATE	DRAWN	Mr. Deepak
CURRENT : 6000 A	NTS	3 OF 3	05-10-2024	APPROVED	Mr. Tapas Das.
TYPE : MCC/PCC LT PANEL			REV	SR. NO	SKEIP/14/08/24/2374
DESIGNATION : MAIN SWITCHBOARD PANEL			00.	DRG.NO	SKEIP/STC/BPL/01.

FRONT VIEW.		SIDE VIEW.	
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