

TEST REPORT



केन्द्रीय विद्युत अनुसंधान संस्थान
CENTRAL POWER RESEARCH INSTITUTE
INDIA

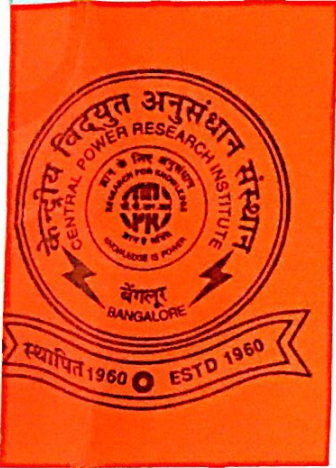
RESEARCH | EVALUATION | CONSULTANCY | TRAINING

TEST REPORT

powering progress through applied research

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CENTRAL POWER RESEARCH INSTITUTE
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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 Number : CPRIBPLSTNC19T0096 Dated : 13.05.2019

Name & Address of the Customer : M/s Murthy Industries,
Plot No. 99/12, D Block, Near Industrial Park
Autonagar, Visakhapatnam, Andrapradesh-530012

Name and Address of the Manufacturer : M/s Murthy Industries,
Plot No. 99/12, D Block, Near Industrial Park
Autonagar, Visakhapatnam, Andrapradesh-530012

Particulars of sample tested : 415 V, 4000A, L.T. Switchboard

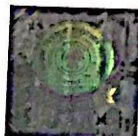
Condition of sample on receipt : New
Type : Power cum motor control centre
Designation : Main Distribution Panel
Description of test sample : L.T. Switchboard
Serial Number : 768
Number of samples tested : One
Date(s) of Test(s) : 07.02.2019
CPRI sample code number(s) : STNC19S0053
Detail(s) of sealing(s) of sample(s) : NIL

Particulars of tests conducted : Verification of temperature rise limits
Test(s) in accordance with : As per Cl. 8.2.1 of IS : 8623 (Part-1), 1993/IEC Pub:439-1,1985
Standard/Specification : and as per customer's requirement.
Sampling Plan : NIL
Customer's Requirement : Maximum Temperature limit on busbar & Joints shall be 80 K
declared by the customer.
Deviations, if any : NIL
Name of the witnessing persons :
Customer's representatives : Mr. Rama Murthy
Mr P. Srinivasa Rao
Other than customer's representatives : NIL

Test subcontracted with name and address of the laboratory : NONE

Documents constituting this report (in words) :
Number of sheets : SEVEN
Number of oscillograms : NIL
Number of graphs : NIL
Number of photos : NIL
Number of Test circuit Diagrams : NIL
Number of Drawings : THREE

(Leena H. Roy)
Test Engineer




(Sarita Dongre)
Joint Director
Approved by

**CENTRAL POWER RESEARCH INSTITUTE
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TEST REPORT

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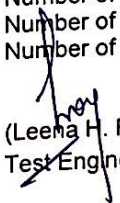
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Customer's representatives : Mr. Rama Murthy
Mr P. Srinivasa Rao
Other than customer's representatives : NIL

Test subcontracted with name and address of : NONE
the laboratory :
Documents constituting this report (in words) :
Number of sheets : SEVEN
Number of oscillograms : NIL
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(Leema H. Roy)
Test Engineer




(Sarita Dongre)
Joint Director
Approved by

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



CPRI

TEST REPORT

Test Report Number: CPRIBPLSTNC19T0096

Date:13.05.2019

SUMMARY OF TEST

1. Test conducted : Verification of temperature rise limits
2. Rating for which tested : 4000A, 3 Phase, 50 Hz
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) MURTHY/19/768 Rev 01 Sheet 1 of 3
2) MURTHY/19/768 Rev 0 Sheet 2 of 3
3) MURTHY/19/768 Rev 0 Sheet 3 of 3
 - 3.4 Test circuit drawing No(s). : NIL
 - 3.5 Photograph No(s). : NIL


(Leena A. Roy)
Test Engineer

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CPRI


TEST REPORT

Test Report Number: CPRIBPLSTNC19T0096

Date: 13.05.2019

DESCRIPTION OF THE SAMPLE TESTED
(As assigned by the manufacturer)

Sample	:	L.T. Switchboard
Rated voltage (Volts)	:	415
Rated current (Amps)	:	4000
Frequency (Hz)	:	50
Insulation level (V)	:	660
No. of phases	:	3 phase with Neutral
No. of poles	:	-
Dimensions of the sample	:	As per drawing
Contacts terminals material	:	-
Isolating distance (mm)	:	-
Phase to earth distance (mm)	:	-
Creepage distance (mm)	:	-
Rated Short time Current (kA rms/KApk)	:	-


(Leeha H. Roy)
Test Engineer

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CPRI

TEST REPORT

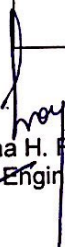
Test Report Number: CPRIBPLSTNC19T0096

Date: 13.05.2019

SCHEDULE OF TESTS

Test Conducted : Verification of temperature rise limits.
Condition of the Sample : New
Date of Test : 07/02/2019
Starting Time(Hrs.) : 11.40
Shut down time(Hrs.) : 17:40
Test current (A) : 4000
Size of conductor used : Copper flexible, (300) sqmm x 13 Nos., Length :2metres
Busbar Cross Section : Material : Al, Busbar inside the panel for Phase:
(150x12) mm x 4Nos.
Neutral : (150x12) mm x 2 Nos.
Frequency (Hz) : 50
Phase : 3
Avg. ambient Temperature at shut down : 27.7°C
Arrangement of thermocouple locations :As per drawing no.MURTHY/19/768 Sheet 1 of 3 Rev 01

Thermocouple		Maximum Temperature Recorded (deg C)	Temperature Rise (K)
Locations	Numbers		
As per drawing	T1	62.0	34.3
As per drawing	T2	71.3	43.6
As per drawing	T3	71.8	44.1
As per drawing	T4	77.1	49.4
As per drawing	T5	75.9	48.2
As per drawing	T6	64.8	37.1


(Leena H. Roy)
Test Engineer

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TEST REPORT


CPRI

Test Report Number: CPRIBPLSTNC19T0096

Date:13.05.2019

SCHEDULE OF TESTS

Thermocouple		Maximum Temperature Recorded (deg C)	Temperature Rise (K)
Locations	Numbers		
As per drawing	T7	57.6	29.9
As per drawing	T8	71.0	43.3
As per drawing	T9	65.7	38.0
As per drawing	T10	66.7	39.0
As per drawing	T11	69.0	41.3
As per drawing	T12	58.0	30.3
As per drawing	T13	66.4	38.7
As per drawing	T14	71.3	43.6
As per drawing	T15	68.0	40.3
As per drawing	T16	72.0	44.3
As per drawing	T17	81.6	53.9
As per drawing	T18	73.8	46.1
As per drawing	T19	65.9	38.2
As per drawing	T20	67.8	40.1
As per drawing	T21	65.5	37.8
As per drawing	T22	77.2	49.5
As per drawing	T23	75.8	48.1
As per drawing	T24	75.5	47.8
As per drawing	T25	66.6	38.9


(Leena H. Roy)
Test Engineer

ULR - TC5181190STCT0096F

**SWITCHGEAR TESTING & DEVELOPMENT STATION
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Phone : +91(0)755 2586682 Fax : +91(0)755 2587774**

Sheet 5 of 7

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CPRI

TEST REPORT

Test Report Number: CPRIPLSTNC19T0096

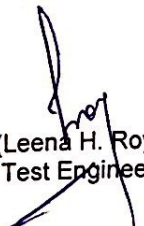
Date: 13.05.2019

SCHEDULE OF TESTS

Thermocouple		Maximum Temperature Recorded (deg C)	Temperature Rise (K)
Locations	Numbers		
As per drawing	T26	63.9	36.2
As per drawing	T27	63.2	35.5
As per drawing	T28	70.4	42.7
As per drawing	T29	60.1	42.3
As per drawing	T30	70.0	42.3
As per drawing	T31	41.2	13.5
As per drawing	T32	37.6	9.9

- Observations : i) The temperature rise obtained was within the limits as specified in the standard & specified by the customer.
ii) High voltage test was conducted at 2.5kVrms for 1 minute to check the effect of temperature rise on adjacent parts of the equipment. Sample withstood the test

CONCLUSION : The test results indicate that the sample tested complies with the requirement of Cl. No. 8.2.1 of IS : 8623 (Part-1), 1993/IEC Pub : 439-1,1985 and customer's requirement.


(Leena H. Roy)
Test Engineer

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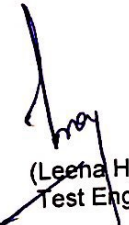
TEST REPORT

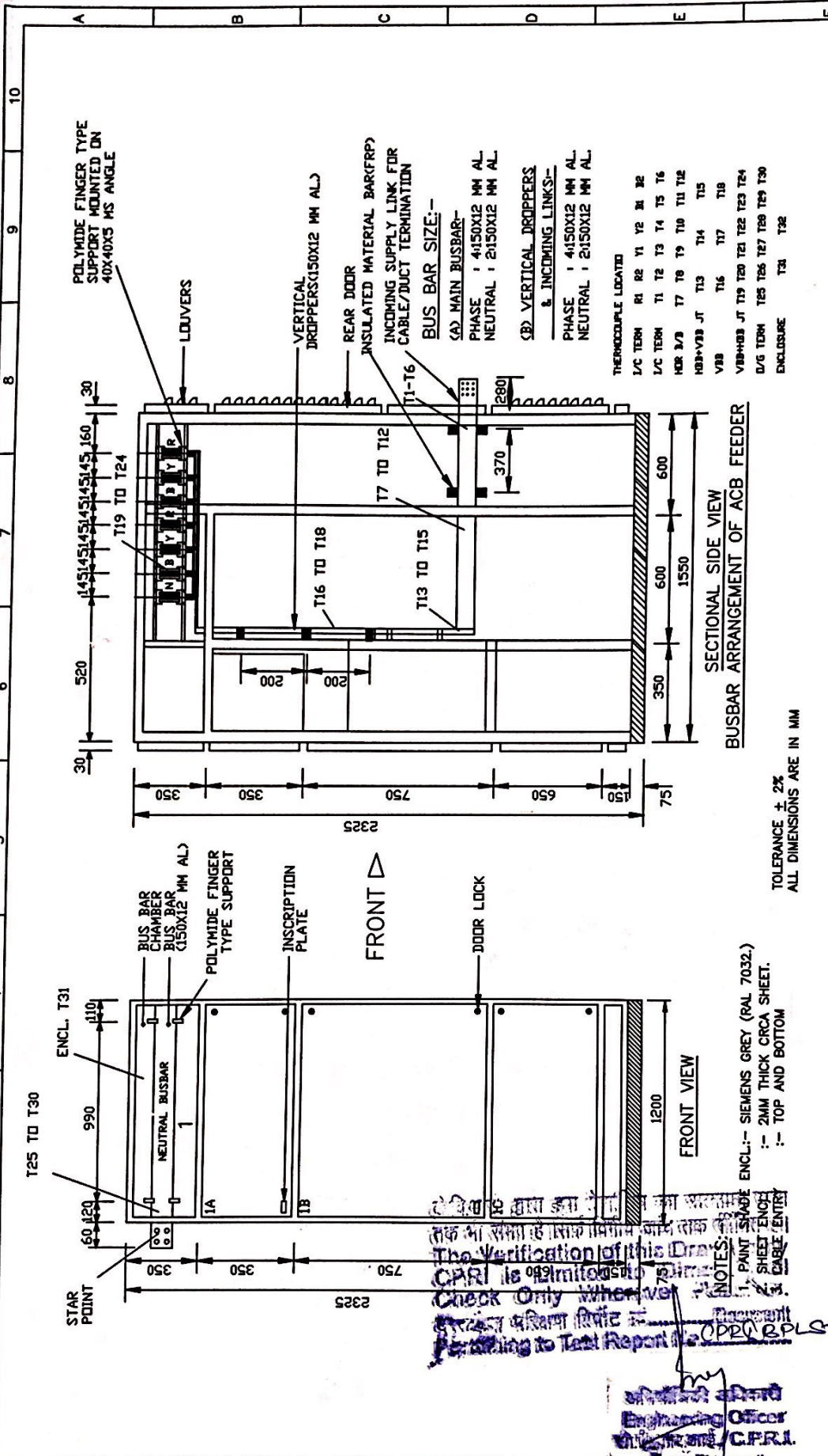
Test Report Number: CPRIBPLSTNC19T0096

Date: 13.05.2019

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/IEC 17025-2005 standard, vide certificate no. TC-5181 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) All documents constituting the 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 the test report / certificate and sealed with a CPRI logo printer paper sticker/embossed.


(Leena H. Roy)
Test Engineer



TOLERANCE ± 2%
 ALL DIMENSIONS ARE IN MM

ENCL.:- SIEMENS GREY (RAL 7032.)
 :- 2MM THICK CRCA SHEET.
 :- TOP AND BOTTOM

NOTES:
 1. PAINT SHADE ENCL.:- SIEMENS GREY (RAL 7032.)
 2. SHEET ENCL.:- 2MM THICK CRCA SHEET.
 3. CABLE ENTRY

The Verification of this Drawing is limited to the scope of the contract. It is not intended to be used for any other purpose without the written permission of CPRI.

Check Only when required for the purpose of the contract.

According to Test Report No. CPRI/PLS/INCL/97009

Engineering Officer
CPRI

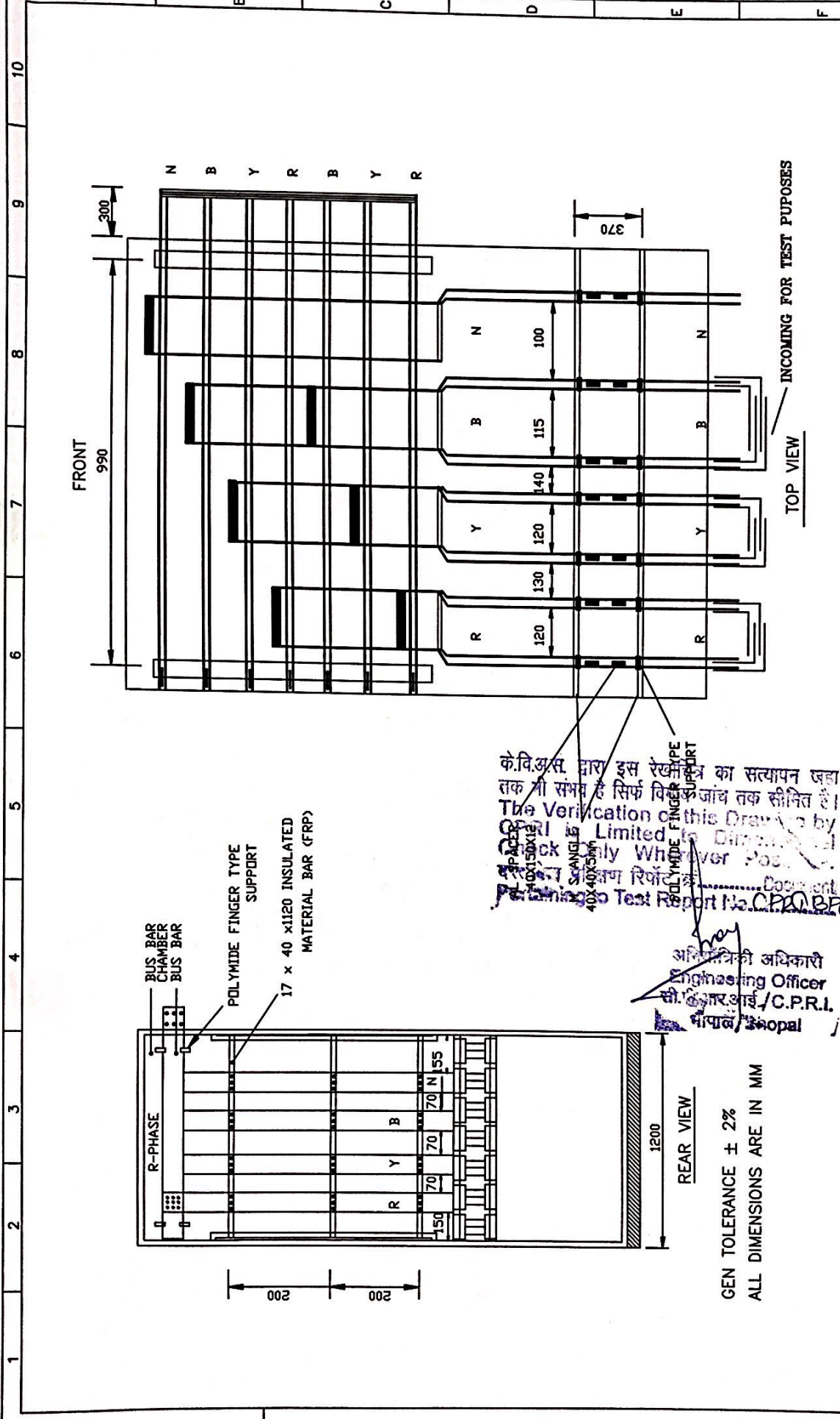
IF IN DOUBT, ASK

This drawing & any information or matter set out hereon are the confidential property of MURTHY INDUSTRIES & must not be disclosed, loaned, copied or used for manufacturing or for any other purpose without their written permission.

DRN. RAWANA	24.01.19	CLIENT	ORDER NO
CHD. RAWANA	24.01.19	CONSULTANT	SR.NO.: 768
APPD. RAWANA	24.01.19	NTS	DRG. NO. MURTHY/18/768
SCALE		TITLE GA FOR 4000A LT SWITCHBOARD FOR TYPE TEST	
JOB NO		PROJECT	SHEET 1 OF 3
ALL DIMENSION ARE IN MM			

MURTHY INDUSTRIES
 PLOT NO.99/12, INDUSTRIAL PARK, 'D' BLOCK,
 AUTO NAGAR, VISAKHAPATNAM-530012 (AP)

REV.	DATE	DRN	REVISION
01	08.02.19	RAM	AS PER CPRI COMMENTS



IF IN DOUBT, ASK

This drawing & any information or matter set out hereon are the confidential property of MURTHY INDUSTRIES & must not be disclosed, loaned, copied or used for manufacturing or for any other purpose with out their written permission.

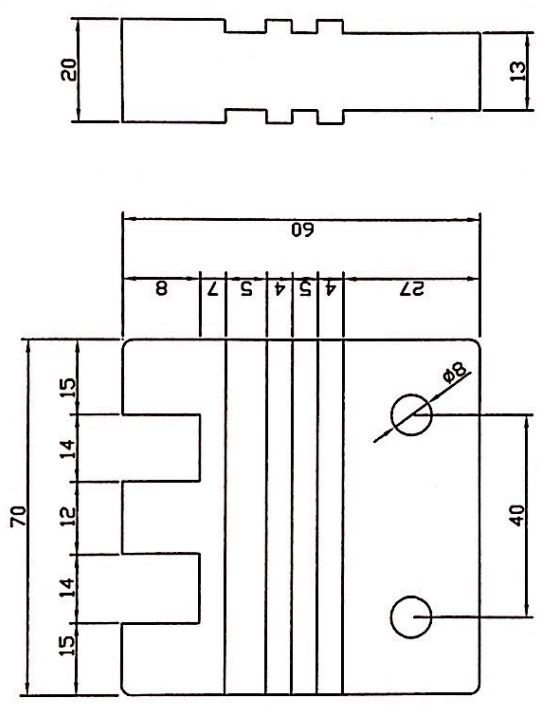
के.वि.अ.स. द्वारा इस रेखाचित्र का सत्यापन जहाँ तक भी संभव है सिर्फ विक्रेता जांच तक सीमित है।
 The Verification of this Drawing by C.P.R.I. is Limited to Dimensional Check Only Whenever Possible.
 के.वि.अ.स. द्वारा इस रेखाचित्र का सत्यापन जहाँ तक भी संभव है सिर्फ विक्रेता जांच तक सीमित है।
 The Verification of this Drawing by C.P.R.I. is Limited to Dimensional Check Only Whenever Possible.
 अतिरिक्त अधिकारी
 Engineering Officer
 सी. प्रो. अ. अ. / C.P.R.I.
 भापाल, Anapal

GEN TOLERANCE \pm 2%
 ALL DIMENSIONS ARE IN MM

TOP VIEW — INCOMING FOR TEST PURPOSES

REV / DATE	DRN	REVISION	DRN: RAMANA	24.01.19	CURNT.	ORDER NO
			CHD: RAMANA	24.01.19		
			APPD: RAMANA	24.01.19	CONSULTANT	SR.NO.: 768
			SCALE	NTS		DRG. NO. MURTHY/19/768
			JOB NO		TITLE	GA FOR 4000A LT SWITCHBOARD FOR TYPE TEST
			ALL DIMENSION ARE IN MM		PROJECT	SHEET 2 OF 3

MURTHY INDUSTRIES
 PLOT NO.99/12, INDUSTRIAL PARK, 'D' BLOCK,
 AUTO NAGAR, VISAKHAPATNAM-530012 (AP)



SUPPORT FOR PH & N
 MATERIAL : POLYIMIDE
 TOLERANCE = ±1MM
 MAKE : POWERMAT

के.वि.अ.स. द्वारा इस रेखाचित्र का सत्यापन जहाँ तक थी संभव है सिर्फ विमीय जाँच तक सीमित है।
 The Verification of this Drawing by CPRI is Limited to Dimensional Check Only Wherever Possible.
 दस्तावेज़ परिक्षण रिपोर्ट नं. _____ Document
 Pertaining to Test Report No. _____

may
 अभियांत्रिकी अधिकारी
 Engineering Officer
 सी.प्र.आर.आई./C.P.R.I.
 नेपाल/Nepal

DRN. RAMANA	24.01.19	CLIENT.	ORDER NO
CHD. RAMANA	24.01.19		
APPD/RAMANA	24.01.19	CONSULTANT - -	SR.NO.: 768
SCALE	NIS		DRG. NO. MURTHY/19/768
JOB NO		TITLE. GA FOR 4000A LT SWITCHBOARD FOR TYPE TEST	
ALL DIMENSION ARE IN MM		PROJECT - -	SHEET 3 OF 3

MURTHY INDUSTRIES
 PLOT NO.99/12, INDUSTRIAL PARK, 'D' BLOCK,
 AUTO NAGAR, VISAKHAPATNAM-530012 (AP)

REV	DATE	DRN	REVISION

सी पी आर आई संगठन

केन्द्रीय विद्युत अनुसंधान संस्थान
प्रो. सर सी.वी. रमन रोड, पो. बा. सं. 8066
सदाशिवनगर, बेंगलूर - 560 080, भारत
ई पी ए बी एक्स : 23601454, 23601905, 2, 23600921
23602919, 23602829, 23600825, 23601258, 23602061
फैक्स : 080-23601213, 23602277
वेब साईट : <http://powersearch.cpri.res.in>
<http://www.cpri.in>

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फैक्स : 0755-2587774
ई-मेल : stds@cpri.in
ad_cpri@dataone.in

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फैक्स : 040-27203378, 27201127
ई-मेल : uhvac@cprihyderabad.com
uhvri.cpri@nic.in

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फोन : 07109-262170
फैक्स : 07109-262170
ई-मेल : trc@cpri.in

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सेक्टर - 62, नोएडा - 201 309 (उ.प्र.)
फोन : 0120-2402823, 2402058
फैक्स : 0120- 2402824
ई-मेल : rtinoida@cpri.in

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प्रथम तल सी दी डी कार्यशाला
WBSEB, अभिक्षण बिल्डिंग (भवन)
बी एन ब्लॉक, सेक्टर - V
साल्ट लेक सिटी, कोलकाता - 700 091
टेलीफैक्स : 033-64511887
ई-मेल : maiti@cpri.in
मोबाइल : 9831124456

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ए.एस.ई.बी. कॉलोनी, नारंगी
गोवाहाटी - 781 026 (असम)
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फोन : 98647 16561
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CPRI FORMATIONS

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23602919, 23602829, 23600825, 23601258, 23602061
Fax : 080-23601213, 23602277
Website : <http://powersearch.cpri.res.in>
<http://www.cpri.in>

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FAX : 0755-2587774
E-mail : stds@cpri.in
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FAX : 040-27203378, 27201127
E-mail : uhvac@cprihyderabad.com
uhvri.cpri@nic.in

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FAX : 07109-262170
E-mail : trc@cpri.in

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FAX : 0120-2402824
E-mail : rtinoida@cpri.in

REGIONAL TESTING LABORATORY
1st FLOOR, CRD WORKSHOP
WBSEB, ABHIKSHAN BUILDING,
'BN' BLOCK, SECTOR-V,
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TELEFAX : 033-64511887
E-mail : maiti@cpri.in
Mobile : 9831124456

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GUWAHATI - 781 026 (ASSAM)
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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)

स्विचगियर परीक्षण तथा विकास केन्द्र

Switchgear Testing & Development Station

गोविन्दपुरा, भोपाल - 462 023

Govindpura, Bhopal - 462 023

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