

CPRI

TEST REPORT



Central Power Research Institute

(A Govt. of India Society)

**P.B.No. 8066, Sadashivanagar Post Office,
Sir C.V. Raman Road,
Bangalore - 560 080 (INDIA)**



**SHORT CIRCUIT LABORATORY
CENTRAL POWER RESEARCH INSTITUTE**

(Member of STL)

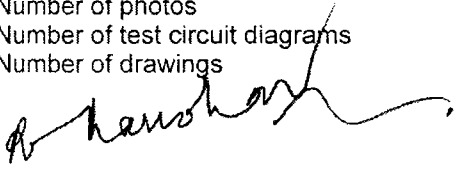

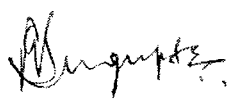
P.B.NO.8066, SADASHIVANAGAR POST OFFICE
SIR C.V.RAMAN ROAD, BANGALORE - 560 080 (INDIA)
Phone : +91 (0) 80 - 23602662 Fax : +91 (0) 80 - 23601213



T-0010

Sheet 1 of 4

TEST REPORT

Test Report Number	SC09390A	Dated: 10 th August, 2009
Name & Address of the Customer	M/s. Krishnaa Energy Pvt. Ltd., DP 69, Sidco Industrial Estate, Thirumudivakkam, Chennai – 600 044.	
Name & Address of the Manufacturer	M/s. Krishnaa Energy Pvt. Ltd., DP 69, Sidco Industrial Estate, Thirumudivakkam, Chennai – 600 044.	
Particulars of sample tested	Low-voltage switchgear and control gear assembly- 415V 4000A L.T. Panel	
Condition of the sample on Receipt	New	
Type	Indoor, cubicle	
Designation	PCC LT Panel	
Serial Number	---	
Number of samples tested	One	
Date (s) of test (s)	25 th June, 2009	
CPRI sample code no(s).	SC09S1228	
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 second with 105 kA peak on phase bus-bars	
Deviations if any	None	
Name of the witnessing persons		
Customer's representative	Mr. P. Ramachandran, Manager(R & D) & Mr.Murthy Pillai	
Other than customer's representatives	None	
Test subcontracted with address of the laboratory	None	
Documents constituting this report (In words)		
Number of sheets	Four	
Number of oscillograms	Two	
Number of graphs	Nil	
Number of photos	Two	
Number of test circuit diagrams	Two	
Number of drawings	Two	
 (R. Manohara) Test Engineer		 (G. Sengupta) Additional Director

AUTHORISED SIGNATORIES



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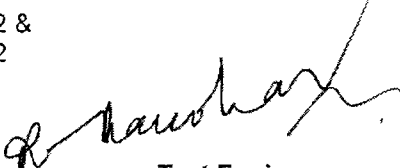
Sheet 2 of 4
Report Number: SC09390A

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

Test sample	Low-voltage switchgear and control gear assembly- L.T. Panel
Type	Indoor, cubicle
Designation	PCC LT Panel
Serial number	---
Rated voltage	415 V
Rated insulation voltage	660 V
Rated current	4000 A
Rated frequency	50 Hz
Number of phases	Three & neutral
Rated short-time withstand current & peak withstand current	50 kA rms for 1.0 second with 105 kA peak on phase bus-bars 30 kA rms for 1.0 second with 63 kA peak on neutral bus-bar

Documents attached to this report

Oscillogram number(s)	SC09390A.S01 & SC09390A.S02
Photo number(s)	SC09390A.PB1 & SC09390A.PA1
Test circuit diagram number(s)	CRTL/SC/STC-04A & CRTL/SC/STC-02A
Drawing number(s)	KEPL-09-05 REV.0 SHT. No. 1 of 2 & KEPL-09-04 REV.0 SHT. No. 2 of 2


Test Engineer



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Report Number: SC09390A

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; Extended terminals of the horizontal bus-bars connected to source.
Body/Enclosure 2 mm thick CRCA sheet; isolated from earth and connected to the source neutral through a fine-wire fuse (FWF) of diameter 0.1 mm and length 50 mm in series with a 2.0 ohms resistor.

Test details

Test circuit drawing number
Test on phase bus-bars CRTL/SC/STC-04A
Test on neutral bus-bar CRTL/SC/STC-02A
Short-circuit applied On the end of vertical bus-bars
Short-circuit point Grounded

Test results

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

Table with 5 columns: Oscillogram Number, Current (kA) Peak, Current (kA) RMS, Duration (second), Ambient Temp. °C, Observations. Row 1: SC09390A.S01, 129.6, 50.69, 1.05, 28, During test: No abnormality, After test: Fine-wire fuse intact.

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

Table with 5 columns: Oscillogram Number, Current (kA) Peak, Current (kA) RMS, Duration (second), Ambient Temp. °C, Observations. Row 1: SC09390A.S02, 82.5, 31.84, 1.06, 28, During test: No abnormality, After test: Fine wire fuse intact.

VERIFICATION OF THE DIELECTRIC PROPERTIES

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

Table with 2 columns: Test procedure, Observations. Row 1: A power frequency voltage of 2.5 kV rms for 1.0 min. 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 & joints : No visible damage or deformation
Supports : Intact

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

Handwritten signature of the Test Engineer

Test Engineer



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Sheet 4 of 4
Report Number: SC09390A

NOTE

- a) 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.
- b) The test results relate only to the item(s) tested.
- c) Publication or reproduction of this report in any form other than by complete set of the whole report and in the language written, is not permitted without the written approval of CPRI.
- d) Corrections / erasings invalidate the test report.
- e) Any anomaly / discrepancy in the test report should be brought to our notice within 45 days from the date of issue.

Additional Information:

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.

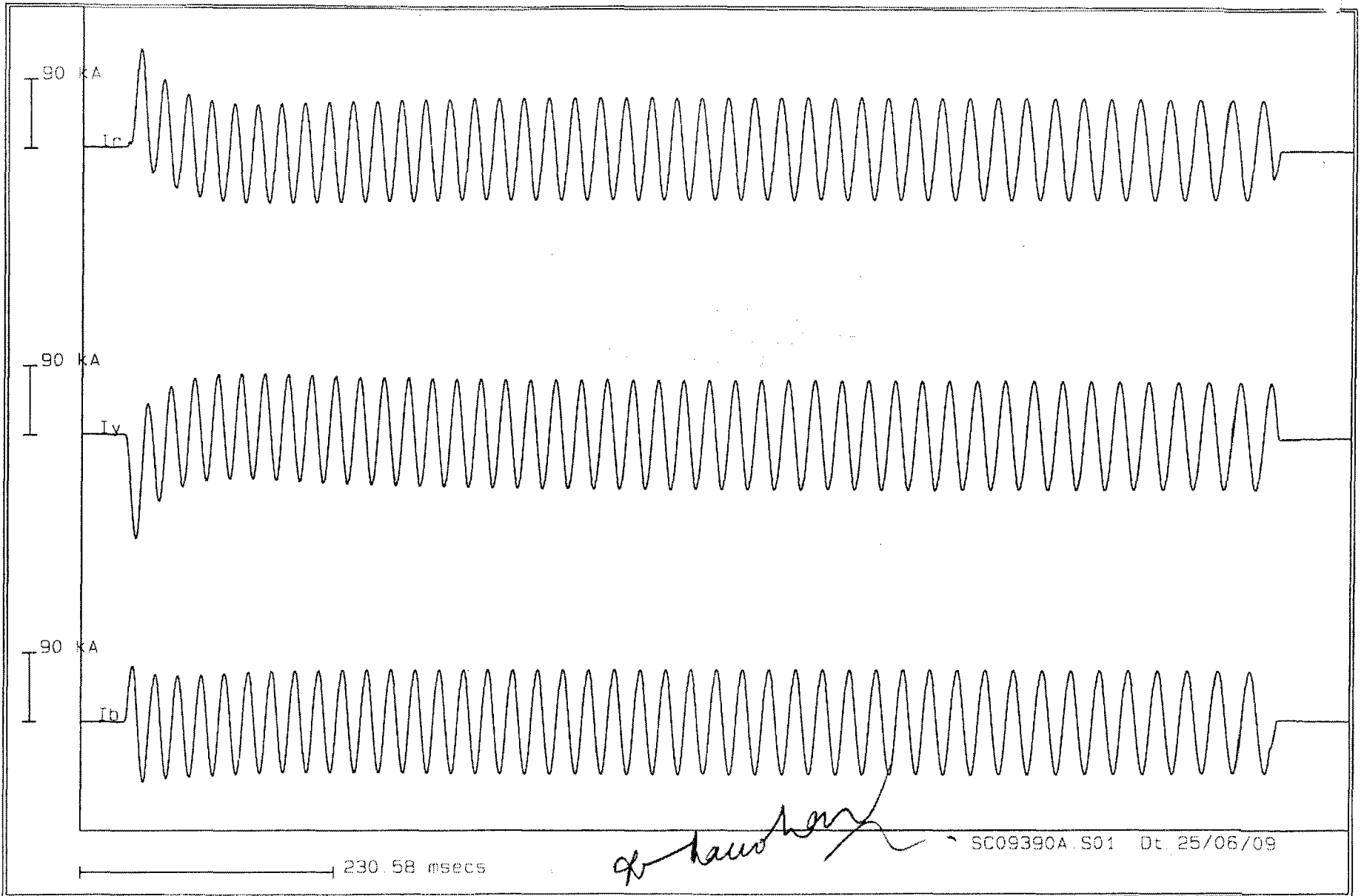
Sealed Certificate:

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.

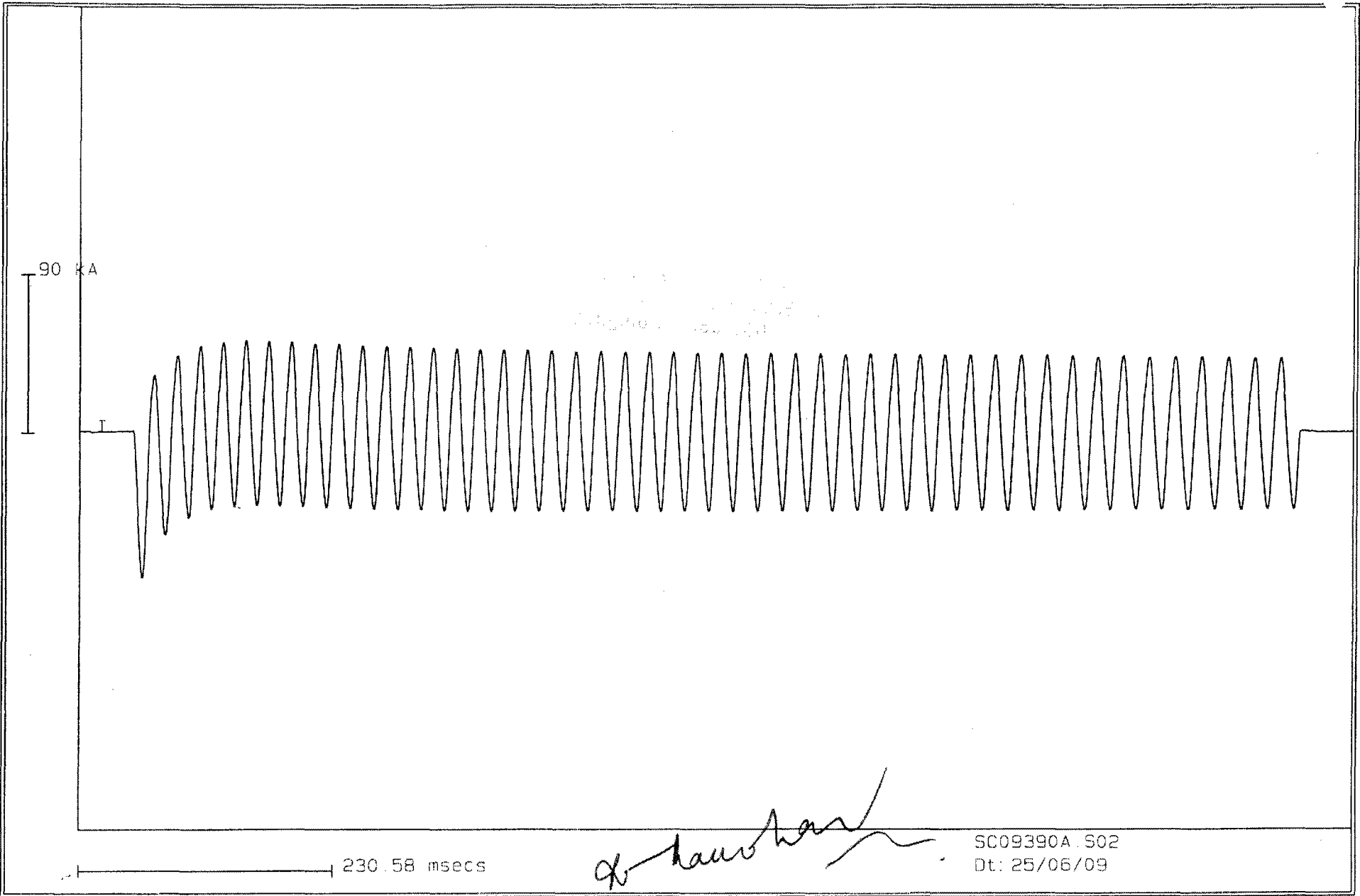
CPRI issues the following type test certificates based generally on STL Guidelines:

- 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



Tom Engineers



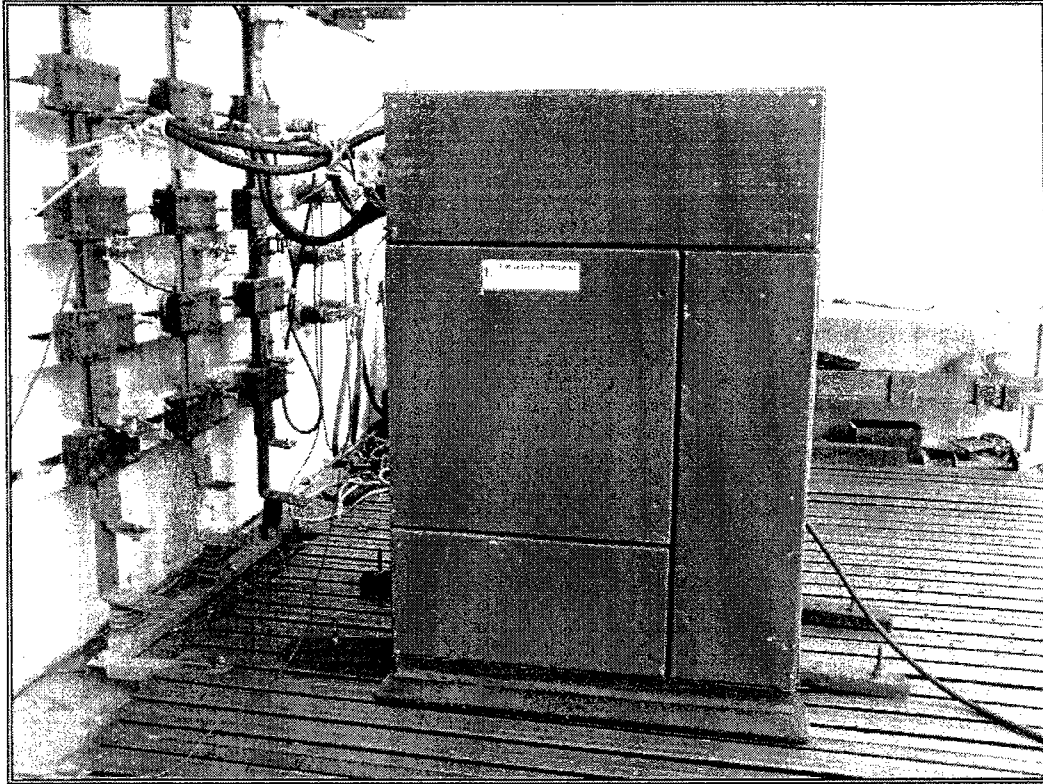


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Mounting arrangement (Before test)

SC09390A.PB1

R. Kaushik
Test Engineer

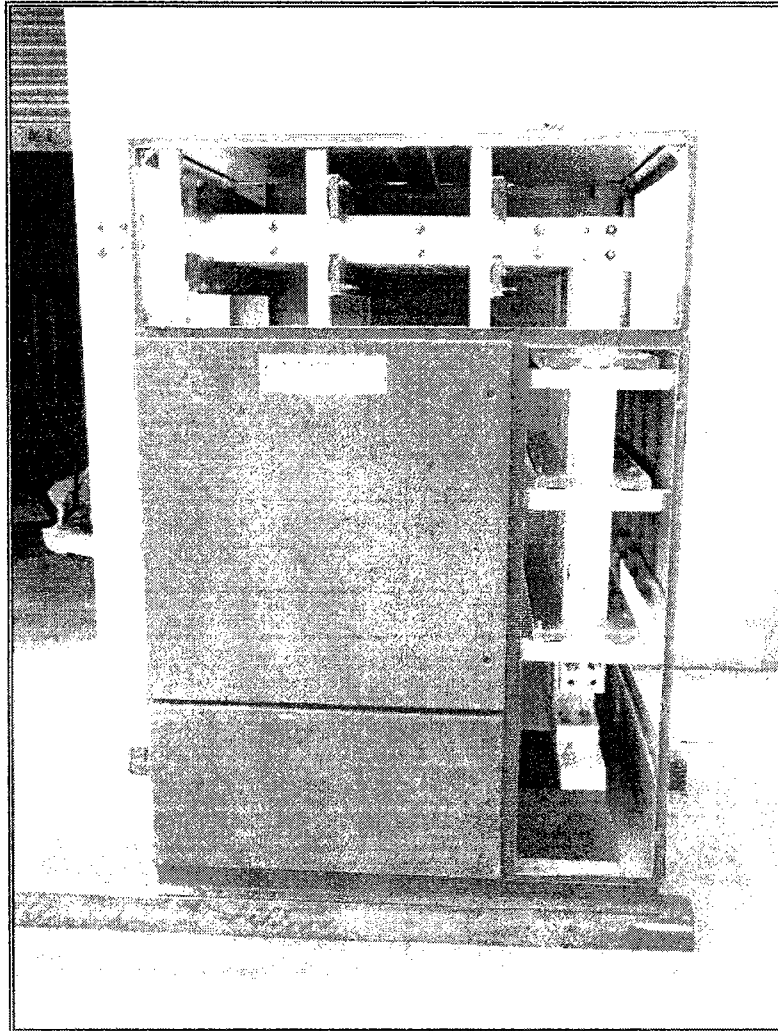


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Condition of the sample (After test)

SC09390A.PA1

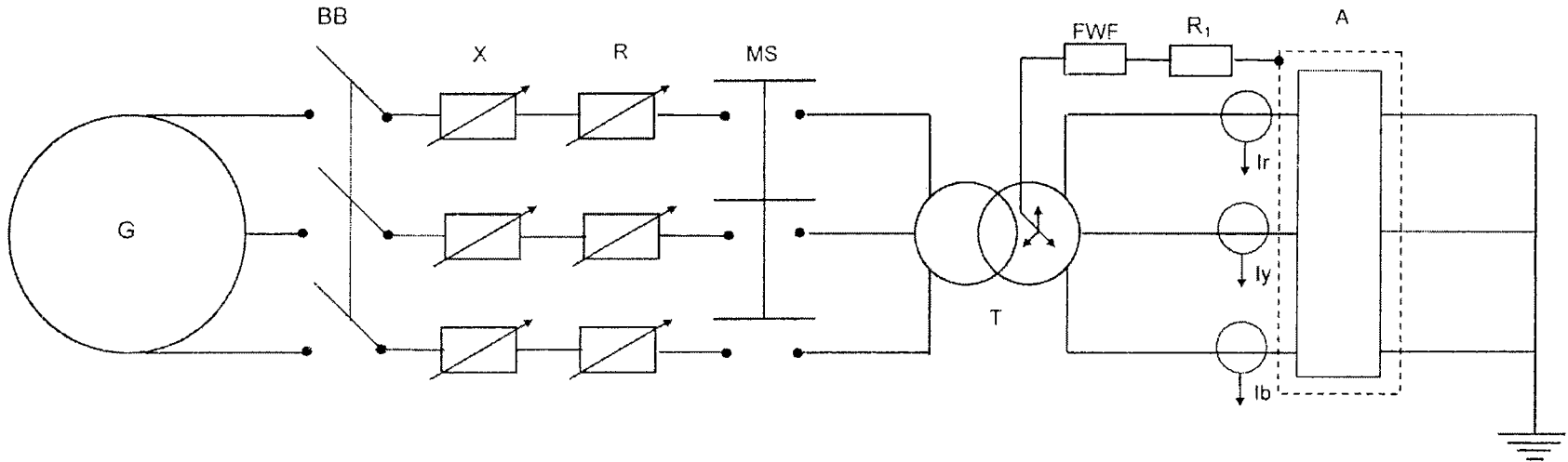
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Schematic of main & measurement circuits - Three phase test

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
- $I_r, I_y \& I_b$ Current sensors
- R_1 Current Limiting Resistor
- A Sample under test

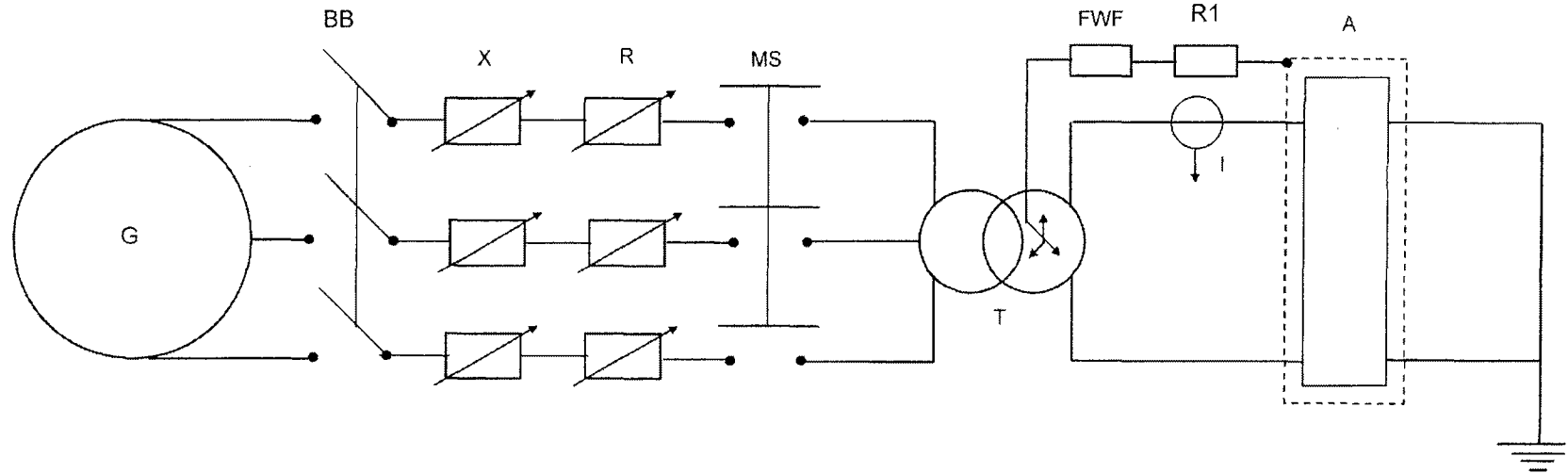
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Schematic of main & measurement circuits - Single phase test

Circuit Number: CRTL/SC/STC-02A



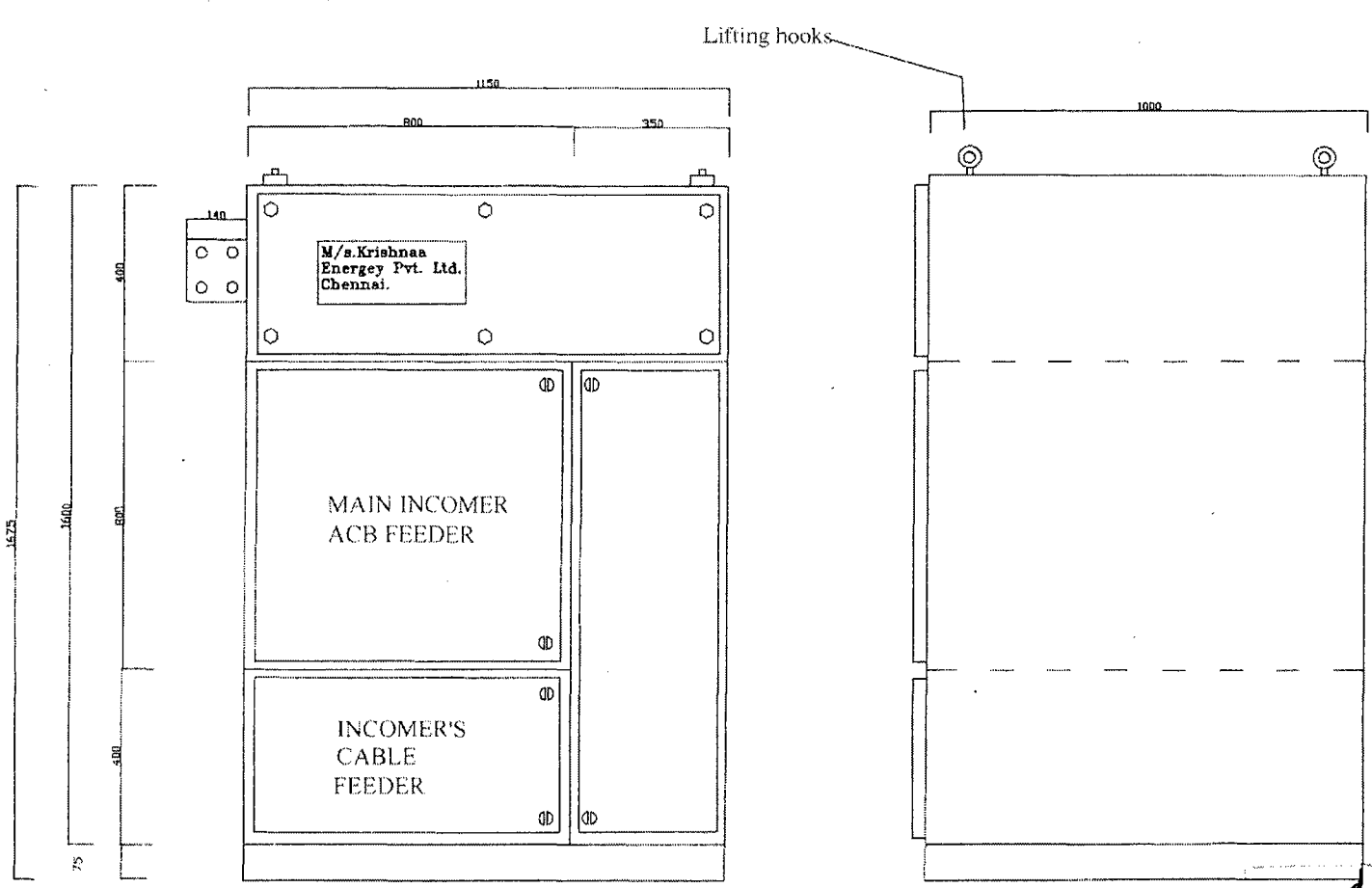
G Short-circuit Generator
BB Back Up Circuit Breaker
X Reactor
R Resistor
MS Make Switch

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

Test Engineer

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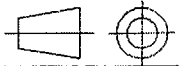



FRONT VIEW

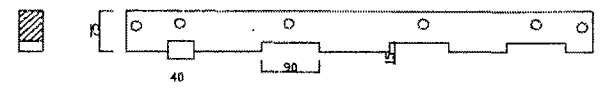
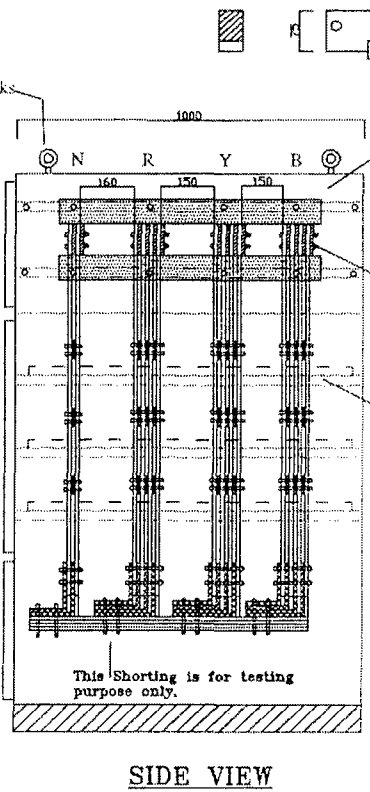
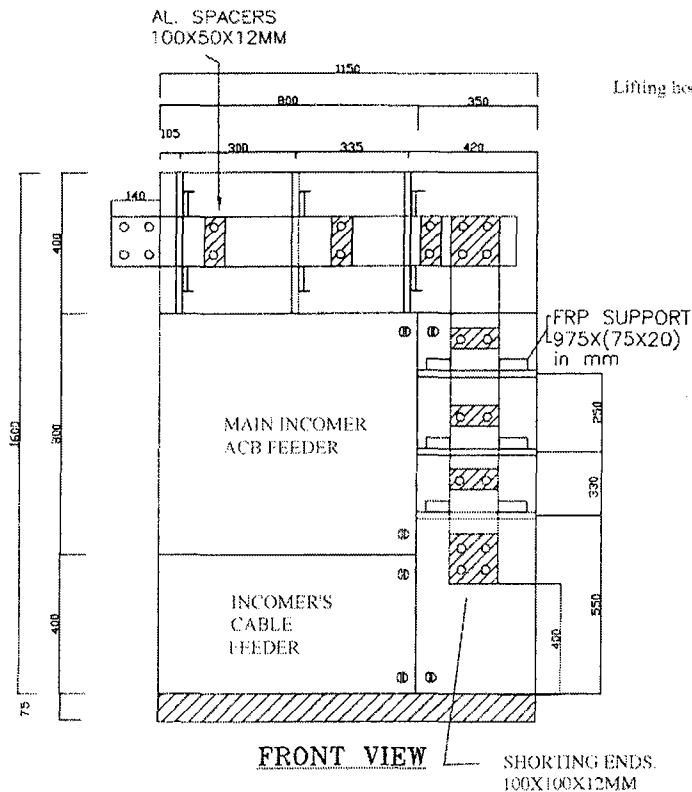
SIDE VIEW

SC09390A

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TYPE: INDOOR		QTY: 1 NO		ALL DIMENSION ARE IN mm			TITLE: 4000 A /50 ka 1 sec. Short Circuit Test Panel.			SCALE : NIS	
0		BJM		PR		KTS		19/06			
REV. DATE	DESCRIPTION	DRAWN	CHD.	APPD.	SIGN	DATE.	MFG BY:  KRISHNAA ENERGY PRIVATE LIMITED			SHT.No.	
CUSTOMER :		DP 69, SIDCO Industrial Estate, Thirumudivakkam,			Chennai-44			1 OF 2		DRAWING No. KEPL-09-05	
P.O.REF :		PROJECT : 4000 A /50 ka 1 sec. Short Circuit Test Panel.			JOB REF:						

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FRP SHEET 75 X 20 MM VERTICAL 3 SETS.
FRP SHEET 75 X 20 MM HORIZONTAL 3 SETS.

100 X 12 - 4NOS.
ALUMINIUM BUS BARS
FOR PHASE
100 X 12 - 2NOS.
ALUMINIUM BUS BARS
FOR NEUTRAL

MS ANGLE
30MM X 30MM X 4MM

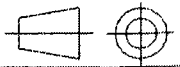

SC09390A

Body Enclosure Made of 14 Swg
(2mm) CRCA sheet.

R. haushan

HORIZONTAL BUS BARS- 1200X100X12X4 NOS. FOR PH.
HORIZONTAL BUS BARS- 1200X100X12X2 NOS. FOR NTL.

VERTICAL BUS BARS- 1050X100X12X4 NOS. FOR PH.
VERTICAL BUS BARS- 1050X100X12X2 NOS. FOR NTL.

TYPE: INDOOR		QTY: 1 NO		ALL DIMENSION ARE IN mm			TITLE: 4000 A /50 ka 1 sec. Short Circuit Test Panel.			SCALE : NTS	
0		BJM		PR		KTS		19/06			
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CUSTOMER :				MFG BY:  KRISHNAA ENERGY PRIVATE LIMITED				DP 69, SIDCO Industrial Estate, Thirumudivakkam, Chennai-44		SHT.No. 2 OF 2	
P.O.REF :				PROJECT : 4000 A /50 ka 1 sec. Short Circuit Test Panel.				JOB REF:		DRAWING No. KEPL-09-04	
1		2		3		4		5		6	

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