HIGH POWER LABORATORY

TEST REPORT

Central Power Research Institute

(A Govt. Of India Society,)
P.B.No. 8066, Sadashivanagar S.P.O,
Prof. Sir. C.V. Raman Road,
Bangalore 560 080

TEST REPORT

CPRI

Test Report Number	: HPL14201 Date: 15th December, 2014
Name & Address of the Customer	: M/s. ALP Technologies, No. 14 & 15, 14th cross, Bhyraveswara Industrial Estate, Andrahalli Main Road, Peenya 2nd stage, Bengaluru - 560 091.
Name & Address of the Manufacturer:	M/s. ALP Technologies, No. 14 & 15, 14th cross, Bhyraveswara Industrial Estate, Andrahalli Main Road, Peenya 2nd stage, Bengaluru - 560 091.
Particulars of sample tested	: 690 V, 2000 A, 80 kA, MCC Panel
Type	: Indoor
Designation	: LT Panel
Serial number	: ALP148090
Number of samples tested	: One
Date(s) of Test(s)	: 21th October, 2014
CPRI Sample Code No.	: HPL14S0294
Condition of sample on receipt	: New
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	: Nil
Customer's requirement	: Nil
Deviation if any	: Nil
Remarks if any	: Nil
Name of the witnessing persons	
Customer's representative	: Mr. Subramanya. S.K, CEO
Other than Customer's representative	: None
Test subcontracted with address of the laboratory	: Nil

Documents constituting this report (In words)

Number of sheets	: Six
Number of oscillograms	: One
Number of graphs	: Nil
Number of photos	: Three
Number of test circuit diagrams	: One
Number of sample drawings	: Two

(R. Manohara)
TEST ENGINEER

(J. Santhosh)
JOINT DIRECTOR

HIGH POWER LABORATORY
P. B.NO. 8066, SADASHIVANAGAR SUB P.O
PROF. SIR.C.V. RAMAN ROAD, BANGALORE-560 080, INDIA
PHONE: + 91- (0) 80-23600574, FAX: + 91 (0) 80-23601213

DESCRIPTION OF SAMPLE TESTED

(As assigned by the manufacturer)

Sample	: MCC Panel
Type	: Indoor
Designation	: LT Panel
Serial number	: ALP148090
Rated voltage	: 690 V
Rated normal current	: 2000 A
Frequency	: 50 Hz
Number of phases	: Three
Rated Insulation level	: 690 V rms
Rated short- time withstand current & peak withstand current	: 80 kA rms & 176 kA peak for Main busbars
Duration of short circuit	: 1.0 second

(R. Manohara)
TEST ENGINEER

LIST OF DRAWINGS AND PHOTOGRAPHS

Drawings of the sample tested

The manufacturer has guaranteed that the sample submitted for the test has been manufactured in accordance with the following drawings. It is verified that these drawings adequately represent the sample tested.

Sample drawing numbers

Sl.No	Drawing No.	Page No.	REV
1	ALP14-9001_SC	1	00
2	ALP14-9001_CPRI_SC	2	00

Total drawings (Duly attested) : Two

Photographs of the sample tested:

Mounting arrangement before test : 334

Condition of the sample after test : 335(Two)

Total photographs : Three

Accuracy of Measurement : The measurement uncertainty for current measurements in this report is by taking into the account of total measuring system;

I1 = ±1.856

I2 = ±1.856

I3 = ±1.856

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SCHEDULE OF TESTS

VERIFICATION OF THE SHORT-CIRCUIT WITHSTAND STRENGTH

Source : Short circuit generator & high current transformer
Number of phases : Three
Frequency : 50 Hz
Neutral : Isolated

Sample
Number of phases : Three (Test on Main Bus-bars)
Condition of sample before test : New
Enclosure : Isolated and grounded through fine wire fuse in series with resistance.
Short circuit point : Grounded

Test on Main Bus-bars
Test circuit drawing number : CRTL/HPL/3SC34

Oscillogram Number	Peak Current (kA)	RMS Current (kA)				Duration (secs)	Observations
		I1	I2	I3	Iavg		
HPL14201S003	180	73.5	77.0	71.5	74.0*	1.17	During test: No abnormalities.
*Equivalent to 80.04 kA rms for 1.0 second							

Condition of the sample after test : No visible damages or deformation of Bus-bars.
All support insulators found intact.
Fine wire fuse intact.

(R. Manohara)
TEST ENGINEER

CENTRAL POWER RESEARCH INSTITUTE

Test Report No. HPL14201

CPRI

VERIFICATION OF THE DIELECTRIC PROPERTIES

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

Test procedure	Observation
A high voltage power frequency of 3.5 kV rms for one minute was applied between;	
a) All the phases connected together & enclosure connected to earth.	Withstood
b) Each phase & all other phases & enclosure connected to earth.	Withstood

Physical Inspection

Condition of bus-bars : No visible damage or deformation
Condition of support insulators : Intact

Remarks: The performance of sample tested complies with the requirements of the Sub-clause 8.2.3 of IS 8623 (part 1):1993/ IEC Pub 439-1 (1985) (Reaffirmed 2004) for the tests conducted.

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TEST ENGINEER

NOTE

a) The Test results relate only to the item(s) tested.

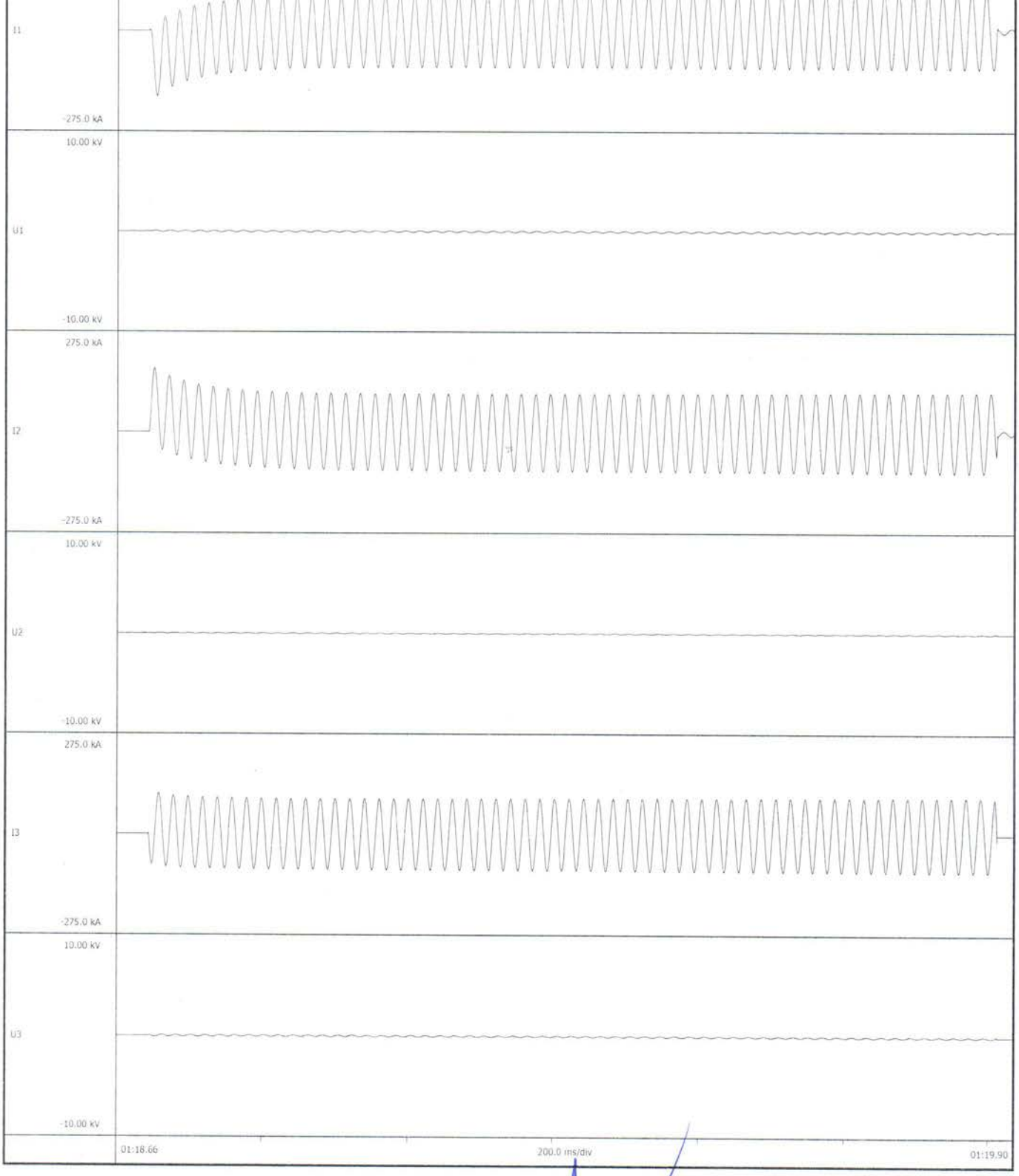
b) Publication or reproduction of the test report/Certificate in any form other than by complete set of the whole test report/Certificate and in the language written is not permitted without the written consent of CPRI.

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-0010 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.

(R. Manohara)
TEST ENGINEER



High Power Laboratory
CPRI, Bangalore

Test Engineer

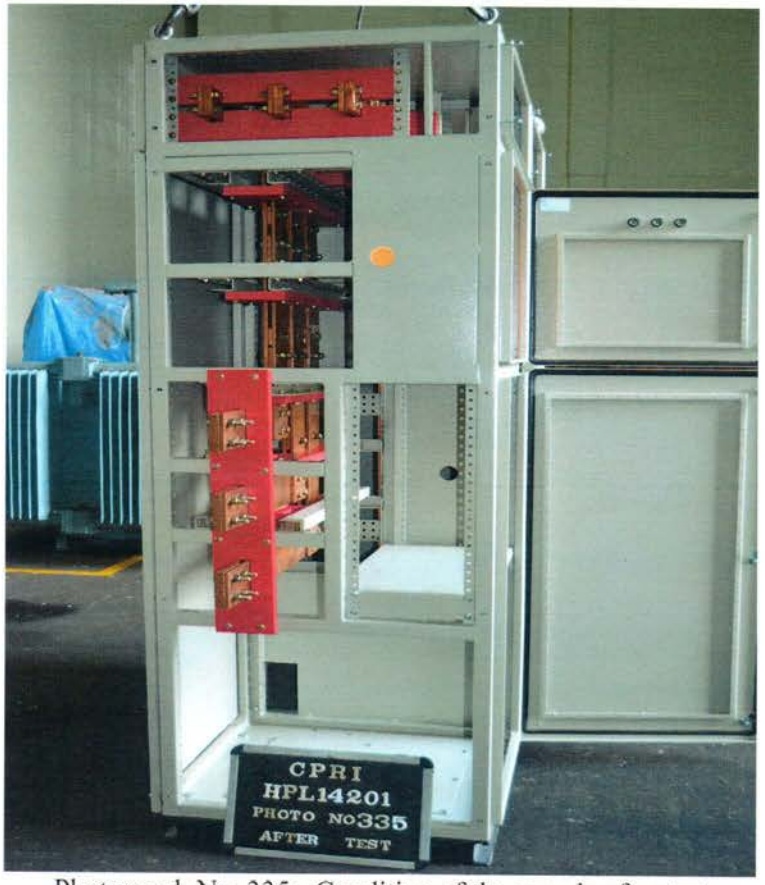
HPL14201S003
21-October-2014

Photograph No. 334: Mounting arrangement before test

(R. Manohara)
TEST ENGINEER

Photograph No. 335: Condition of the sample after test

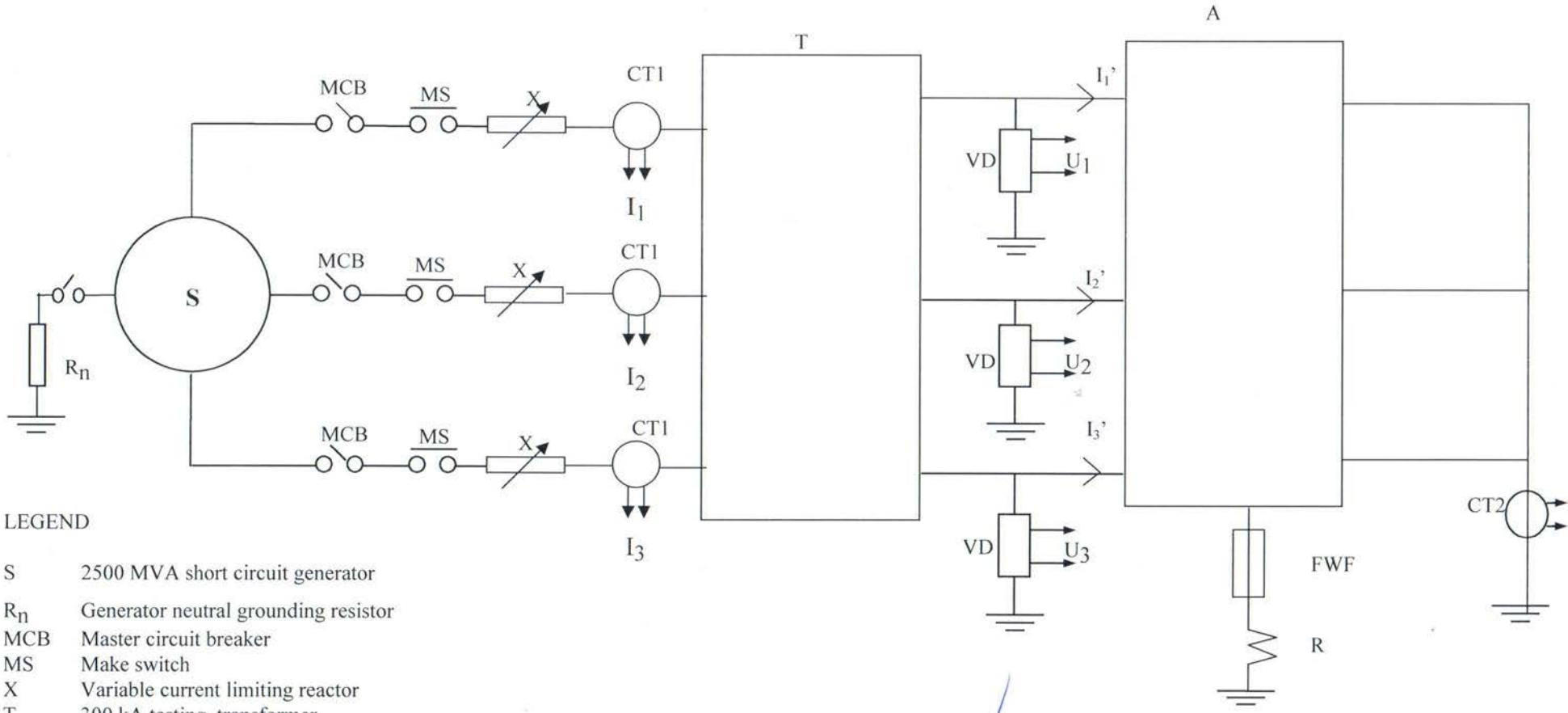
(R. Manohara)
TEST ENGINEER



Photograph No. 335: Condition of the sample after test

(R. Manohara)
TEST ENGINEER

HIGH POWER LABORATORY
P. B.NO. 8066, SADASHIVANAGAR SUB P.O
PROF. SIR.C.V. RAMAN ROAD, BANGALORE-560 080, INDIA
PHONE: + 91- (0) 80-23600574, FAX: + 91 (0) 80-23601213



LEGEND

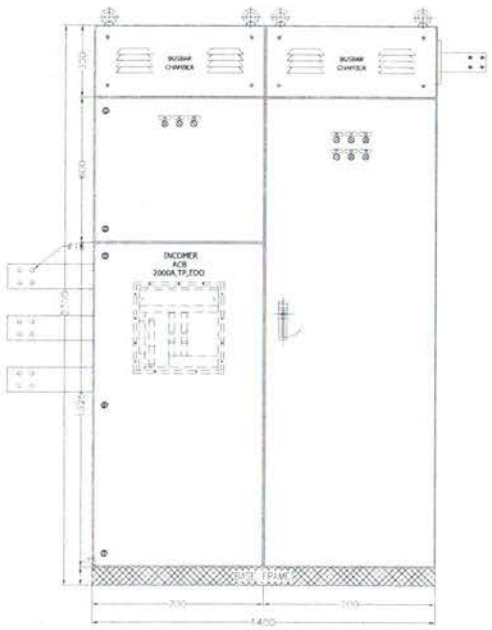
S	2500 MVA short circuit generator
R_n	Generator neutral grounding resistor
MCB	Master circuit breaker
MS	Make switch
X	Variable current limiting reactor
T	300 kA testing transformer
VD	Voltage divider
CT1	Measuring Current Transformer
CT2	Protection current transformer
A	Apparatus under test
R	Current limitting resistor
FWF	Fine wire fuse
I_1 I_2 I_3	Currents recorded on primary side of 300 kA transformer
I_1' I_2' I_3'	Corresponding secondary currents of 300 kA transformer

Test Engineer

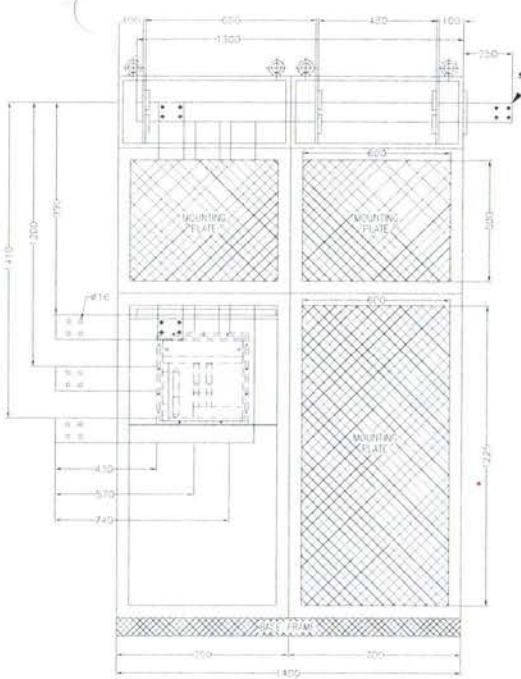
CPRI HIGH POWER LABORAT
BANGALORE

Schematic diagram of test circuit

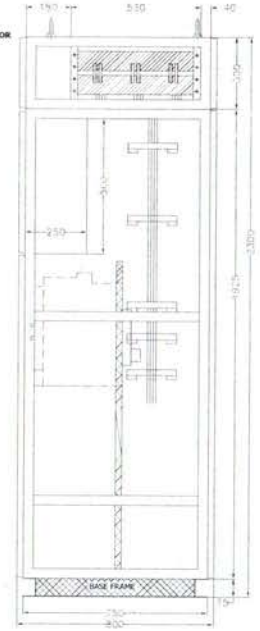
Drg. No. CRTL/HPL/3SC34



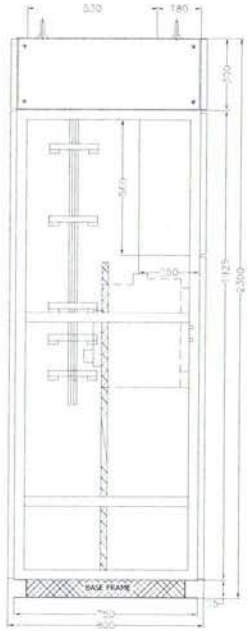
FRONT GENERAL ARRANGEMENT



INTERNAL GENERAL ARRANGEMENT



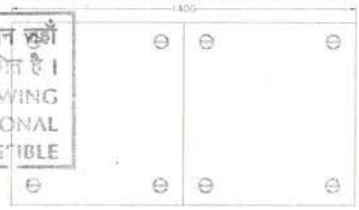
RIGHT SIDE VIEW (INTERNAL)



LEFT SIDE VIEW (INTERNAL)

LEFT SIDE VIEW (EXTERNAL)

BOTTOM VIEW



TOP VIEW

TEST CONDUCTED

रिपोर्ट क्रमांक .....
से संबंधित दस्तावेज
Document Pertaining to
Report No HPC/4201

1. SHORT CIRCUIT TEST AT 80kA FOR 1 SEC
(AS PER IEC CLAUSE IS 8623 (PART-1), 1993/IEC PUB.439-1(1985))

GENERAL NOTES

1. NAME : CONTROL PANEL
2. CONSTRUCTION : CRCA SHEET STEEL FOLDED/WELDED.
3. SHEET STEEL THICKNESS:
   a). BASE FRAME : ISMC 75 WITH BLACK PAINT.
   b). LOAD BEARING MEMBERS - 2.0mm.
   c). DOORS AND OTHERS - 2mm.
   d). PARTITIONS : 1.6mm.
   e). GLAND PLATE : 3mm.
4. IP
   a). PROTECTION : IP42
5. PAINT / FINISH: POWDER COATED
   a). EXTERIOR : RAL7032/TEXTURE FINISH
   b). INTERIOR : RAL7032/TEXTURE FINISH
   c). BASE FRAME : BLACK/PAINT
6. BUS BAR:
   a). MAIN BUS : 2Rx80x12mm. Cu. Busbar
   b). HORIZONTAL BUS : 2Rx80x12mm. Cu. Busbar
   c). VERTICAL BUS : 2Rx100x10mm. Cu. Busbar
7. VOLTAGE AND FREQUENCY:
   a). RATED VOLTAGE : 690V +/-10%,3Ph,3Wire
   b). RATED FREQUENCY : 50Hz +/-3%,
8. GASKET : NEOPRENE GASKET .
9. DOOR BEEDING : POLY URETHENE 20X6mm
10. TYPE : INDOOR
11. DIMENSION TOLERANCE - +/- 2%
11. ACB NOT INCLUDED FOR TESTING

परीक्षण अभियन्ता / Test
उच्च शक्ति प्रयोगशाला / H
सी. पी. आर. आई. / CP
बेंगलूर / Bangalore

DATE	22.10.2014
APPROVED BY	SSK
CHECKED BY	KJ
DRAWN BY	KJ

MANUFACTURER
M/s. ALP Technologies
No.14 & 15, 14th Cross, Bhyraveshwara Industrial Estate,
Andrahalli Main Road. Peenya 2nd Stage
Bangalore-560 091. Land Line - 080 - 28367788

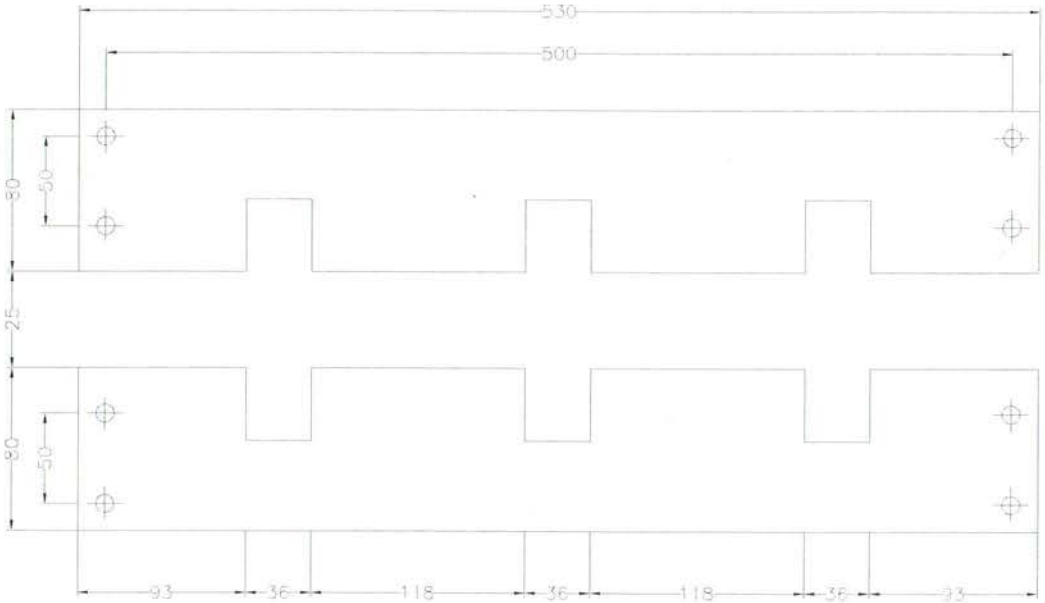
Project Description
SC TEST -2000A PANEL-80kA FOR 1 SEC

Customer

Page Description
GENERAL ARRANGEMENT DRAWING
FRONT, SIDE AND INTERNAL VIEW

Rev	Description	Date
00	INITIAL DRAWINGS	22.10.2014

VENDOR DOC NO:
ALP14-9001_SC



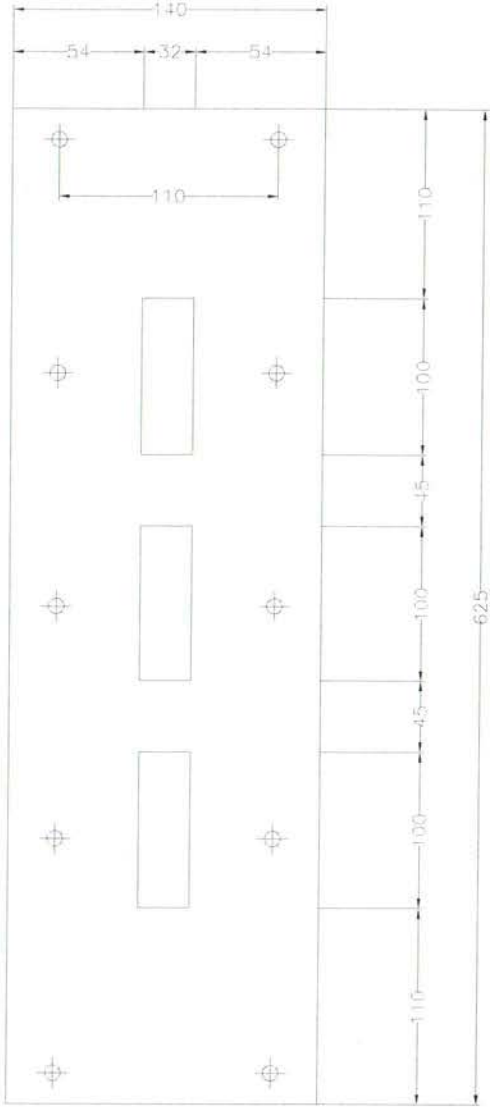
FRP-BUSBAR SUPPORTER - 4 SETS
THICKNESS : 20 MM

FRONT DOOR GASKET DETAILS
DETAILS 'B'

REAR DOOR GASKET DETAILS
DETAILS 'C'

FRP SUPPORT
DIMENSION TOLERANCE : +/- 10%

परीक्षण अभियन्ता / Test Engineer
उच्च शक्ति प्रयोगशाला / H. P. LAB
सी. पी. आर. आई. / CPRI
बेंगलूर / Bangalore



FRP-BUSBAR SUPPORTER
THICKNESS : 20 MM
QUANTITY : 3 SETS FOR BUSBAR SUPPORT
: 2 SETS FOR CONNECTION SUPPORT

DATE	22.10.2014
APPROVED BY	SSk
CHECKED BY	KJ
DRAWN BY	KJ

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M/s. ALP Technologies
No.14 & 15, 14th Cross, Bhyraveshwara Industrial Estate,
Andrahalli Main Road, Peenya 2nd Stage
Bangalore-560 091, Land Line - 080 - 28367788

Project Description
SC TEST -CONTROL PANEL-80kA FOR 1 SEC

Customer

Page Description
INSULATOR DETAILS

Rev	Description	Date
00	INITIAL DRAWINGS	22.10.2014

VENDOR DOC NO:
ALP14-9001_CPRI_SC