



Certificate No. : TC-5389

ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

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**TEST REPORT**

SHEET No.: 1 OF 8

NAME & ADDRESS OF CUSTOMER M/s. Epoxy Terminal & Equipment Pvt. Ltd. Plot No : 6B Phase -III, IDA, Pashmylaram, Patancheru - Mandal, Sangareddy-Dist Telangana- 502 307	REPORT NO.: RP-1819-011677 DATE : 26/06/2018							
	CUSTOMER REF. NO.: NIL	DATED: 19/05/2018						
	DATE OF SAMPLE RECEIPT: 19/05/2018	DATE OF TESTING: 29/05/2018 & 14/06/2018						
	SAMPLE IDENTIFICATION Make: M/s. Epoxy Terminal & Equipment Pvt. Ltd.							
SAMPLE DESCRIPTION 17.5kV, 250A EPOXY THROUGH BUSHING Rated Voltage (U_N) : 17.5 kV Rated Current (I_N) : 250 A Rated Frequency : 50 Hz No. of Phase : One Rated Insulation level : 42kVrms /95kVp Bushing Rod Material : Copper Bushing Rod Dia. : M12 Rated thermal short time current (I_{th}) & its duration: 18kArms for 1 sec. Rated dynamic current (I_d): 45kA peak	<table border="1"> <thead> <tr> <th>ERDA Sample Code No.</th> <th>SR. NO.</th> </tr> </thead> <tbody> <tr> <td>ERDA-00258483</td> <td>01/14.05.18</td> </tr> <tr> <td>ERDA-00258484</td> <td>02/14.05.18</td> </tr> </tbody> </table> TYPE DESIGNATION: EPOXY DRAWING NO.: ETB-0015 REV 1 EMBOSSING : ETE		ERDA Sample Code No.	SR. NO.	ERDA-00258483	01/14.05.18	ERDA-00258484	02/14.05.18
ERDA Sample Code No.	SR. NO.							
ERDA-00258483	01/14.05.18							
ERDA-00258484	02/14.05.18							
TEST DETAILS : As per SHEET No. 2 of 8								
ENCLOSURES: As per SHEET No. 2 of 8								
TEST WITNESSED BY: Mr. Ulpesh Parmar [Epoxy Terminal & Equipment Pvt. Ltd.]								
REMARKS: As per SHEET No. 3 of 8 & SHEET No. 6 of 8								
PREPARED BY	CHECKED BY	APPROVED BY (A.S.Khopkar)						
NOTE: 1. This report relates only to the particular sample received for testing in good condition ERDA. 2. This report cannot be reproduced in part under any circumstances. 3. Publication of this report requires prior permission in writing from Director, ERDA. 4. Only test asked for by customer have been carried out. 5. In case of any dispute, Vadodara will be the exclusive jurisdiction & shall be construed as where the cause has arised. Caution: ERDA is not responsible for the authenticity of photocopied or reproduced test reports. ERDA provides support to customers for verification of the authenticity of test reports issued by ERDA.								

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REPORT NO.: RP-1819-011677

SHEET No.: 2 OF 8

DATE : 26/06/2018

TEST DETAILS	TEST SPECIFICATIONS
(For ERDA-00258483)	
1. Wet Power Frequency voltage withstand test	As per IS-2099-1986 & test voltage specified by the customer
(For ERDA-00258484)	
2. Dry Power Frequency voltage withstand test	As per IS-2099-1986 & test voltage specified by the customer
3. Dry Lightning impulse voltage withstand test	As per IS-2099-1986
4. Thermal short time current withstand test and Dynamic current withstand test*	As per customer requirement

ENCLOSURES

Oscillogram No.

184/01

Test circuit diagram No.

OLSC/SWG/96

Drawing No.

ETB-0015 REV 1

*NOTE (For Test No. 4):

- 1) The test was carried out at ambient temperature without pre heating the bushing as specified by customer.
- 2) Insulation level (i.e. Power frequency withstand voltage) was declared by the customer.
- 3) Test set up for rated short time current withstand test and dynamic current withstand test provided by the customer.
- 4) Thermal short time current was specified by the customer.
- 5) Not covered under NABL scope

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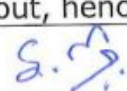
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**REPORT NO.:** RP-1819-011677**SHEET No.:** 3 OF 8**DATE** : 26/06/2018

Atmospheric condition : Dry bulb temperature : 32.0 °C
Wet bulb temperature : 27.0 °C
Atmospheric Pressure : 743.1 mm of Hg.

Sr. No.	Test Conducted (Cl. No. & IS)	Test Requirement	Obtained Results	Remarks
1.	Wet Power Frequency Voltage Withstand Test. ERDA-00258483 (As per Cl. No. 11.3 of IS:2099-1986 & test voltage was specified by the customer)	The test voltage of 42 kVrms corrected to reference atmospheric condition shall be applied between the H.V. Terminal & Earth for one minute duration under artificial rainfall condition.	No disruptive discharge observed	--- #
2.	Dry Power Frequency Voltage Withstand Test. ERDA-00258484 (As per Cl. No. 11.13 of IS:2099-1986 & test voltage was specified by the customer)	The test voltage of 42 kVrms shall be applied between the H.V. Terminal & Earth for one minute duration.	Withstood	Conforms
3.	Dry Lightning Impulse Voltage Withstand Test ERDA-00258484 (As per Cl. No. 11.4 of IS:2099-1986)	Test Voltage : 95 kVp $\pm$ 3.0 % (No. of shots to be applied : 15+ve & 15-ve polarity)	No disruptive discharge observed (+ve 93.002 to 95.857 kVp) (- ve 94.284 to 96.852 kVp) (Wave forms recorded given in SHEET No.: 4 OF 8 & 5 OF 8)	--- # 

Note : '#' As per customer's requirement pre & post routine test were not carried out, hence conformity remark not given for dielectric tests.


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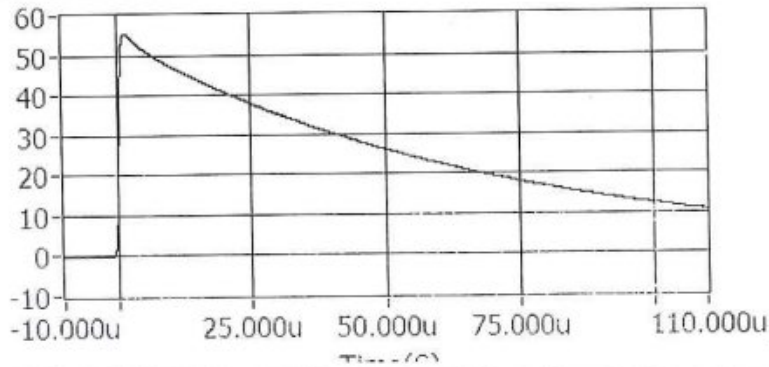


REPORT No.: RP-1819-011677

SHEET No.: 4 OF 8

DATE : 26/06/2018

DRY LIGHTNING IMPULSE VOLTAGE WITHSTAND TEST



CALIBRATION PULSE

U_{peak}: 55.55kV

T1: 1.06μS

T2: 48.36μS

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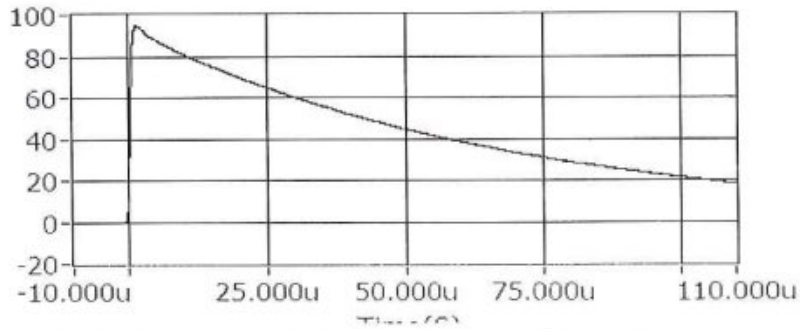


REPORT No.: RP-1819-011677

SHEET No.: 5 OF 8

DATE : 26/06/2018

DRY LIGHTNING IMPULSE VOLTAGE WITHSTAND TEST

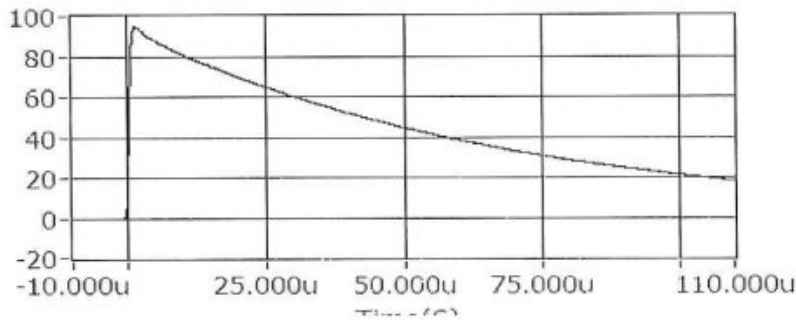


FIRST SHOT

Upeak: 94.01kV

T1: 1.06uS

T2: 48.41uS

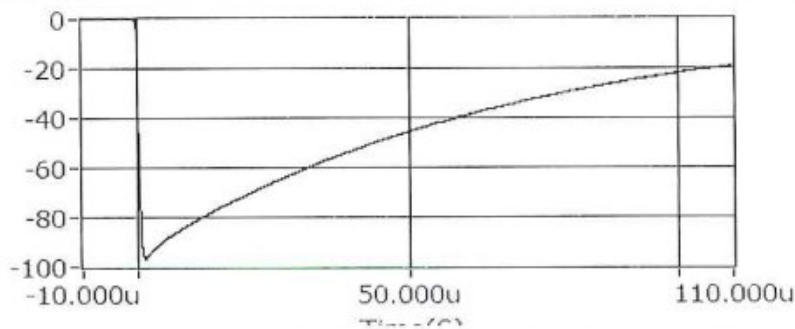


LAST SHOT

Upeak: 95.02kV

T1: 1.05uS

T2: 48.27uS

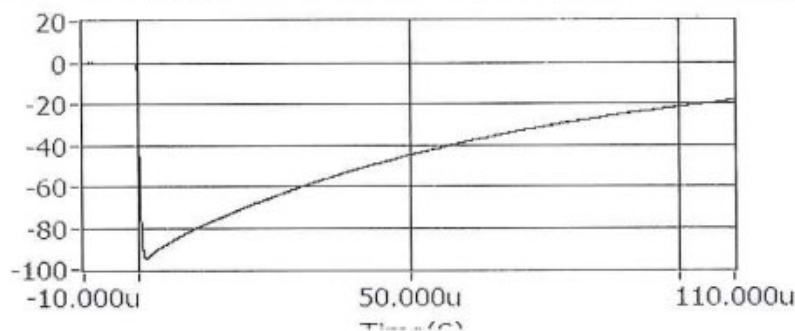


FIRST SHOT

Upeak: -96.85kV

T1: 1.00uS

T2: 48.19uS



LAST SHOT

Upeak: -95.09kV

T1: 1.07uS

T2: 48.13uS

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REPORT No.: RP-1819-011677

SHEET No.: 6 OF 8

DATE : 26/06/2018

4. THERMAL SHORT TIME CURRENT WITHSTAND TEST AND DYNAMIC CURRENT WITHSTAND TEST:

(As per customer's requirement)

ERDA S.C.No.: ERDA-00258484

Rated short time current withstand test and dynamic current withstand test was performed on the sample connected to source as specified by customer and as per test circuit diagram No.: OLSC/SWG/96.

Condition of the equipment under test: After lightning impulse test.

NOTE: As per customer's request, the conductor of this bushing (Copper rod) having diameter of M12 passed through the bushing to carry out the test.

Supply frequency: 50.001 Hz.

Test no.	Oscillogram no.	Test current (kA)		Duration (sec.)	Observation During test
		Dynamic peak	Thermal		
1.	184/01	45.120	18.171	1.002	No Abnormality

Observation after test: No abnormality was observed.
No crack was observed.

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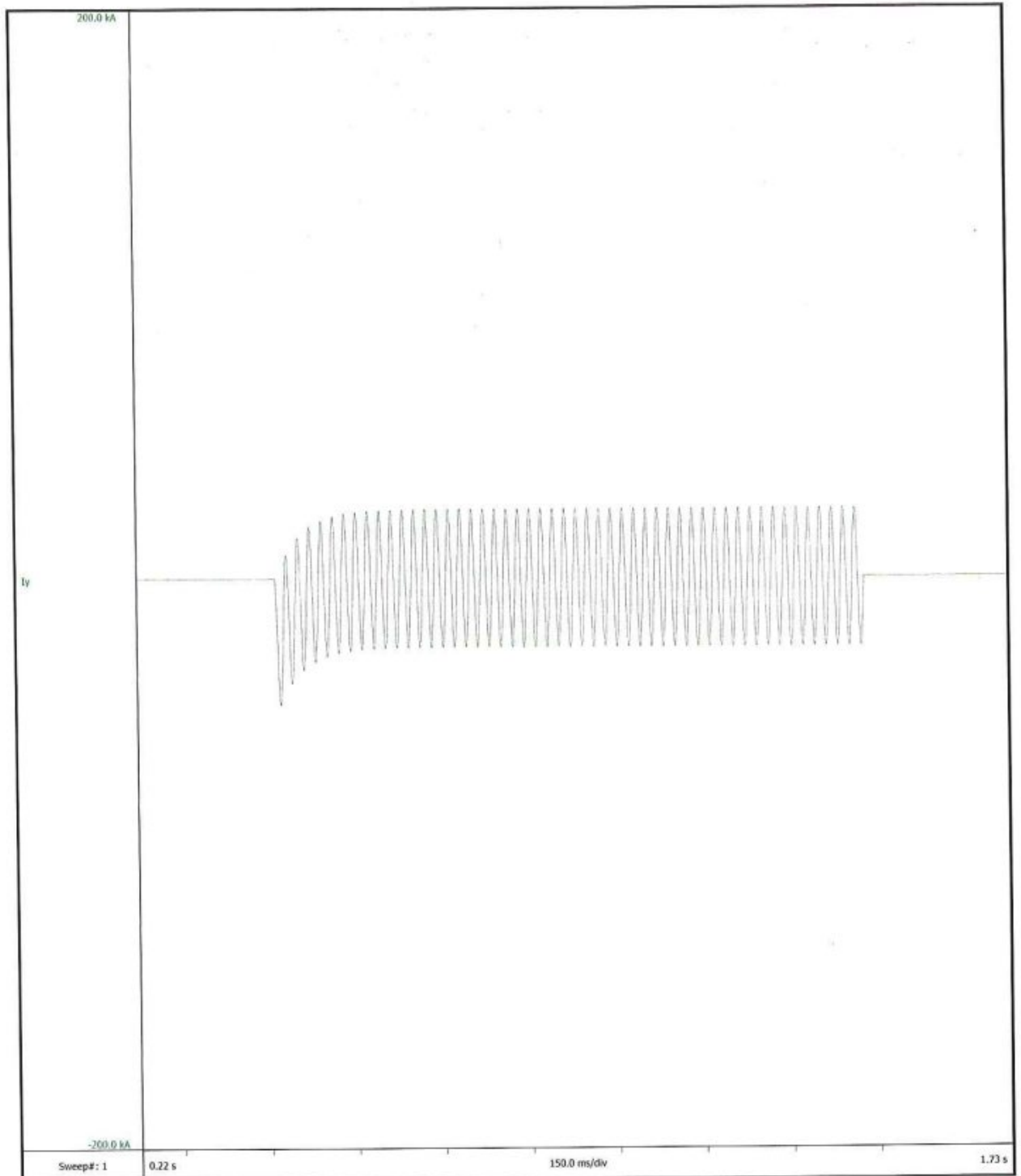
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REPORT NO. : RP-1819-011677

SHEET No. : 7 OF 8

DATE : 26/06/2018



OSCILLOGRAM NO. : 184/01

1123356





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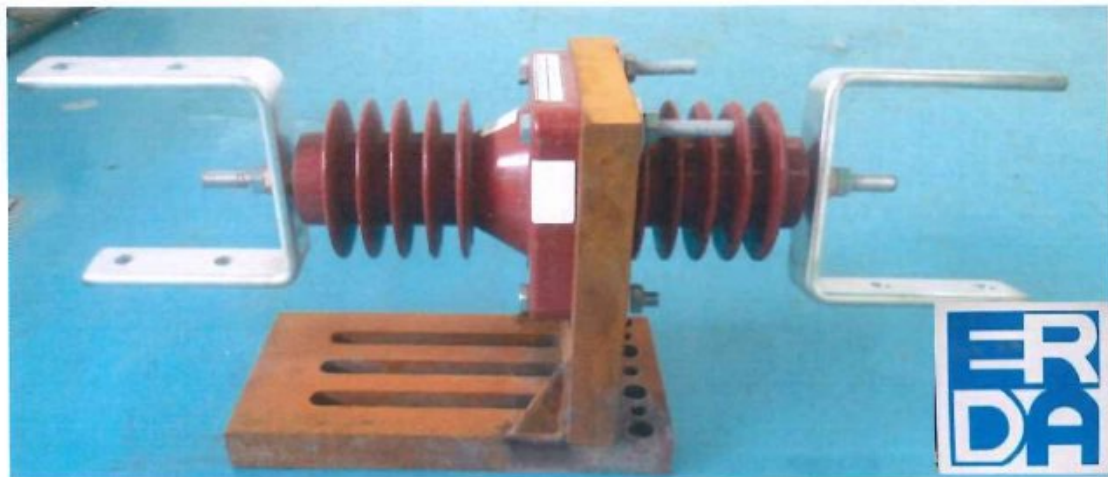


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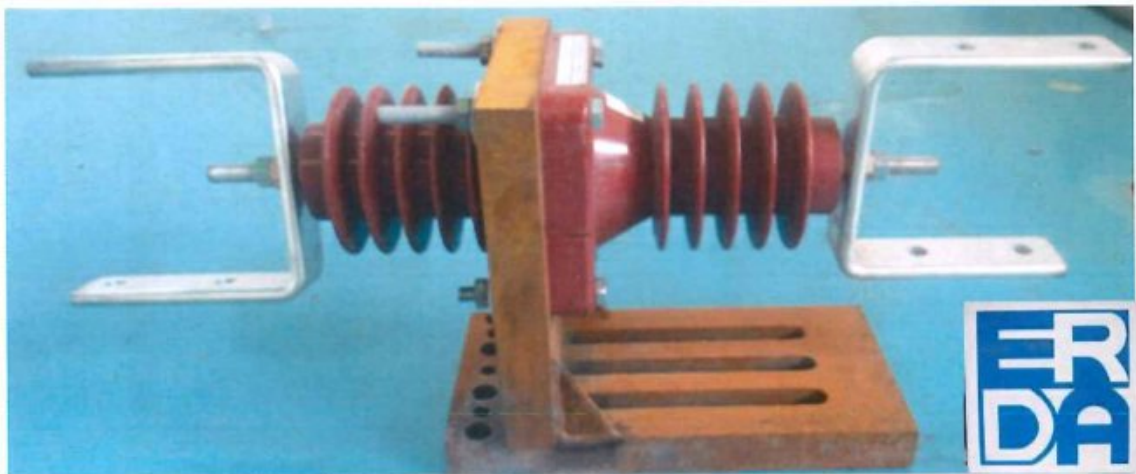
SHEET No.: 8 of 8

DATE : 26/06/2018

PHOTOGRAPH OF TEST SAMPLES



ERDA-00258484



ERDA-00258483

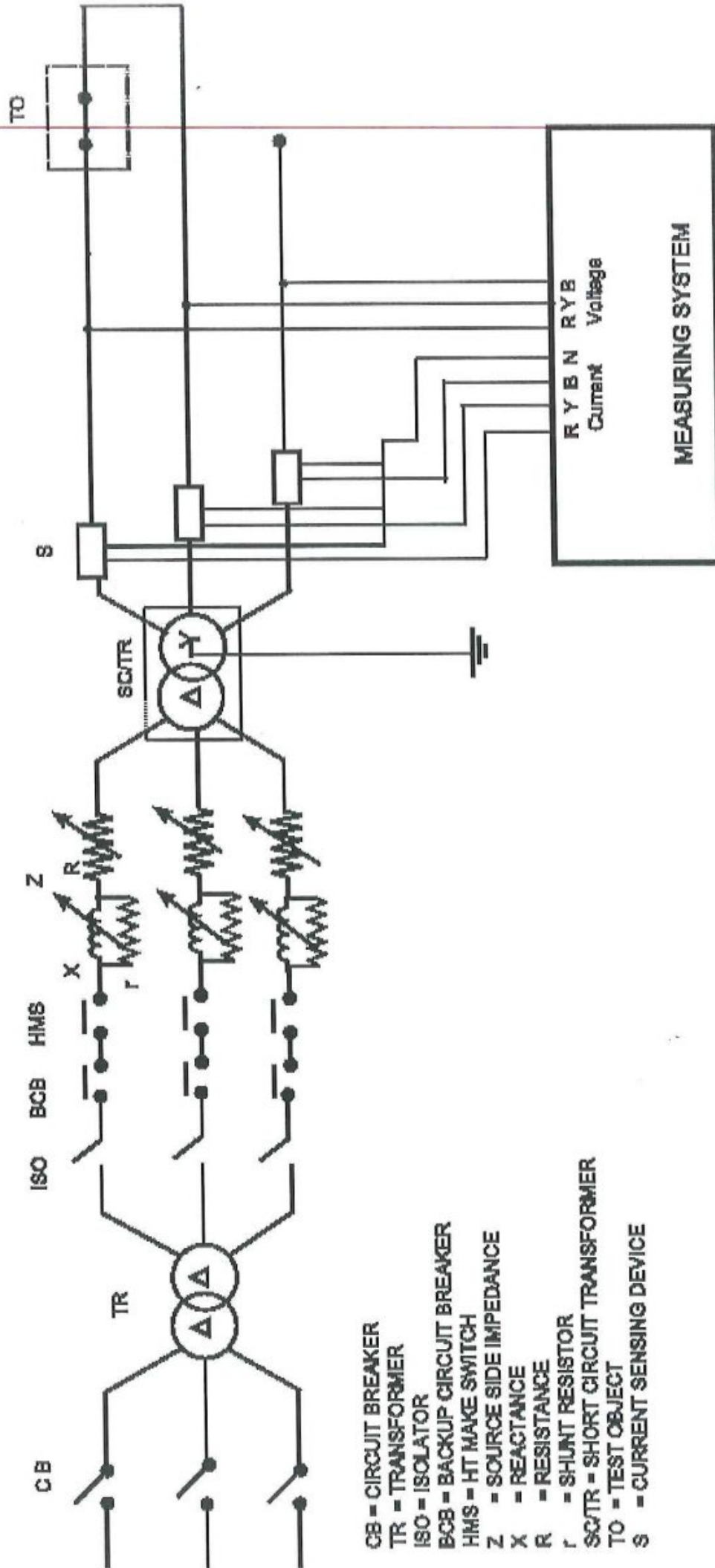
S.M.

PREPARED BY

[Signature]

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TC 2565785



- CB = CIRCUIT BREAKER
- TR = TRANSFORMER
- ISO = ISOLATOR
- BCB = BACKUP CIRCUIT BREAKER
- HMS = HT MAKE SWITCH
- Z = SOURCE SIDE IMPEDANCE
- X = REACTANCE
- R = RESISTANCE
- r = SHUNT RESISTOR
- SC/Tr = SHORT CIRCUIT TRANSFORMER
- TO = TEST OBJECT
- S = CURRENT SENSING DEVICE

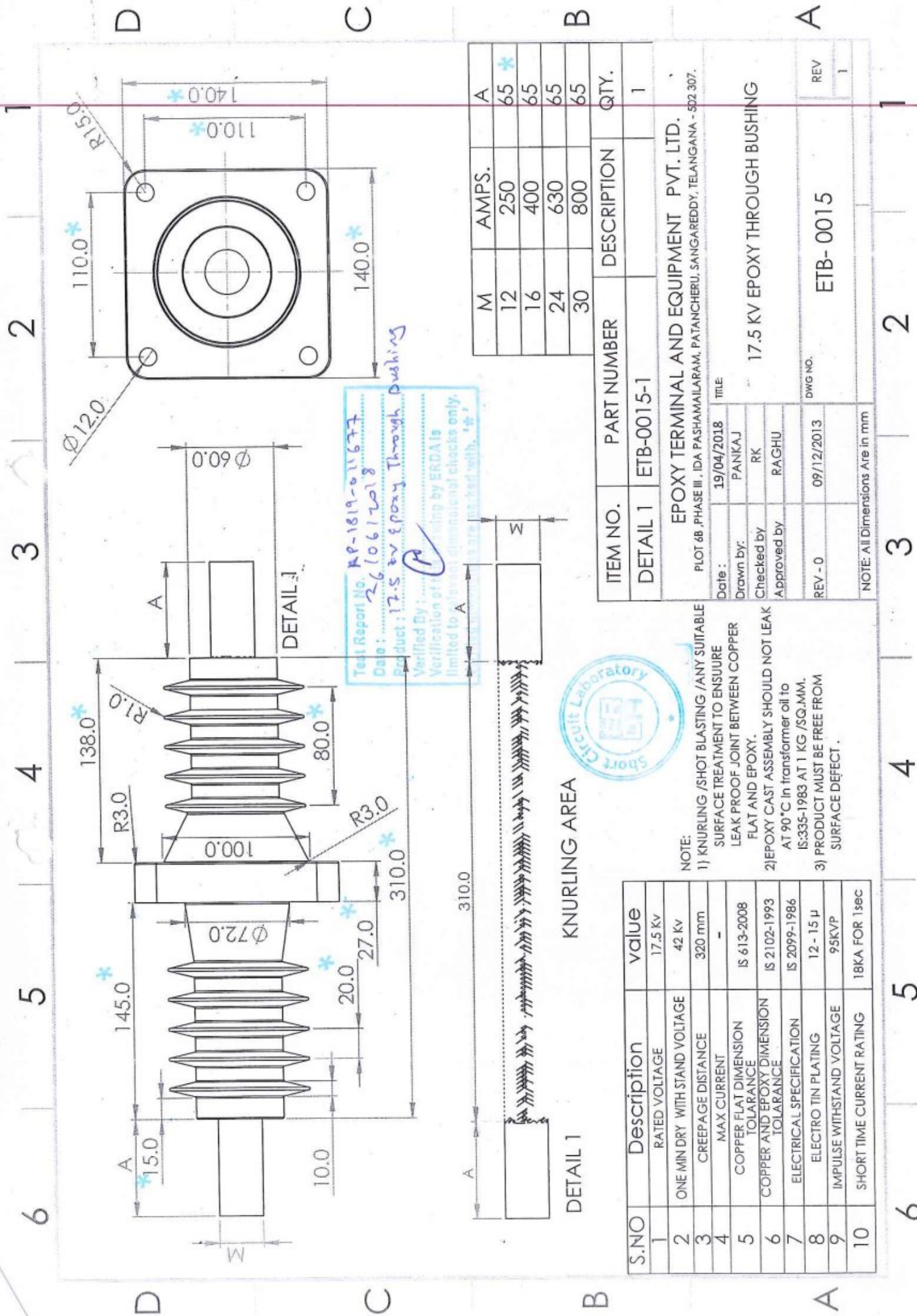


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SCHEMATIC CIRCUIT DIAGRAM

DRN H. A. S.	CKD BY M. B. M.	DATE 13/11/2008	DRAWING No. OLSC/SWG/96
-----------------	--------------------	--------------------	----------------------------

REPORT NO.:
DATE:



Test Report No. RP-1819-011677
Date: 26/06/2018
Product: 17.5 kv Epoxy Through Bushing
Verified By: [Signature]
Verification of [Signature] by ERDA is limited to relevant dimensional checks only. [Signature]
[Signature] is not to be used with 'A'.



NOTE:
1) KNURLING /SHOT BLASTING / ANY SUITABLE SURFACE TREATMENT TO ENSURE LEAK PROOF JOINT BETWEEN COPPER FLAT AND EPOXY.
2)EPOXY CAST ASSEMBLY SHOULD NOT LEAK AT 90°C in transformer oil to IS:335-1983 AT 1 KG /SQ.MM.
3) PRODUCT MUST BE FREE FROM SURFACE DEFECT .

S.NO	Description	value
1	RATED VOLTAGE	17.5 Kv
2	ONE MIN DRY WITH STAND VOLTAGE	42 Kv
3	CREEPAGE DISTANCE	320 mm
4	MAX CURRENT	-
5	COPPER FLAT DIMENSION TOLERANCE	IS 613-2008
6	COPPER AND EPOXY DIMENSION TOLERANCE	IS 2102-1993
7	ELECTRICAL SPECIFICATION	IS 2099-1986
8	ELECTRO TIN PLATING	12 - 15 μ
9	IMPULSE WITHSTAND VOLTAGE	95KVP
10	SHORT TIME CURRENT RATING	18KA FOR 1sec

M	AMPS.	A
12	250	65
16	400	65
24	630	65
30	800	65

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
DETAIL 1	ETB-0015-1		1

EPOXY TERMINAL AND EQUIPMENT PVT. LTD.
PLOT 6B ,PHASE III ,IDA PASHAMAILARAM, PATANCHERU, SANGAREDDY, TELANGANA - 502 307.

Date :	19/04/2018	TITLE
Drawn by:	PANKAJ	
Checked by	RK	
Approved by	RAGHU	

REV - 0	09/12/2013	DWG NO.
		ETB- 0015

NOTE: All Dimensions Are in mm