



Certificate No. : T-0071

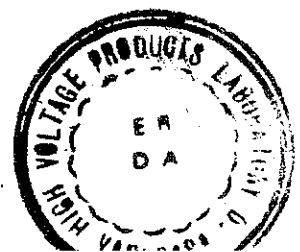
**TEST REPORT**

SHEET : 1 OF 12

<b>NAME &amp; ADDRESS OF CUSTOMER</b>  SILKAANS ELECTRICAL MANUFACTURING CO. PVT. LTD, PLOT NO. R-247,T.T.C INDUSTRIAL AREA, M.I.D.C,RABALE, NAVI MUMBAI - 400 701.	<b>TEST REPORT NO.</b> : PHV/07/576-3 <b>DATE</b> : 26.06.2008	
	<b>CUSTOMER REF.NO:</b> G 8696	<b>DATE :</b> 29.02.2008
	<b>DATE OF SAMPLE RECEIPT</b>  08.03.2008	<b>DATE OF TESTING</b>  12.04.2008 to 17.06.2008
	<b>SAMPLE DESCRIPTION</b> RESIN CAST WOUND PRIMARY CURRENT TRANSFORMER  <b>MFD.BY : Silkaans Electrical Mfg Co Pvt Ltd</b>	
<b>SAMPLE IDENTIFICATION</b>  <b>SR.NO.</b> : CT02089388  <b>TYPE</b> : WOUND PRIMARY  <b>ERDA IDENTIFICATION NO :</b> PHV 40/3 .  <b>TEST SPECIFICATION :</b>  IS 2705/1992, IS 11322/1985 & Customer's requirement.		
<b>TEST DETAILS</b>  As per Sheet No. 2 of 12.	<b>ENCLOSURES :</b> Number of Oscillogram : Two Number of Photograph : One Number of Drawings : ONE  Oscillogram No. : 1) 216/01 2)216/02 Photograph No : PHV 40/192 Drawing No : 3044	
<b>TEST RESULTS</b> : As per sheet : 3 to 12.		
<b>REMARKS</b> : 1) The sample <b>CONFORMS</b> to the requirements of the above mentioned ISS in the test nos.I,II,III,IV,V,VI,VIII & IX( mentioned on sheet 2 of 12.) 2) The observation made during test no.VII(mentioned on sheet 2 of 12) are recorded on sheet no.10 of 12.		
 <b>PREPARED BY</b>	 <b>CHECKED BY</b>	 <b>APPROVED BY</b>

- Note:
1. This report relates only to the particular sample received in good condition for testing at ERDA.
  2. This report can not be reproduced in part under any circumstances.
  3. Publication of this report requires prior permission in writing from Director, ERDA.
  4. Only tests asked for by the customer have been carried out .

TE0040221





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TEST REPORT NO. : PHV/07/576-3

SHEET : 2 OF 12

DATE : 26.06.2008

Sr No	TESTS ( In sequence)	IS 2705/1992 & 11322/1985 CL.NO	PAGE NO.
I	a) Power Frequency Dry Withstand Test on Primary winding	9.3-Part 1- IS 2705/1992	3 of 12
	b) Partial Discharge Measurement	11322/1985	3 of 12
II	Lightning Impulse Voltage Withstand Test	9.8-Part 1- IS 2705/1992	4,5,6 of 12
III	a) Power Frequency Dry Withstand Test on Primary winding	9.3-Part 1- IS 2705/1992	7 of 12
	b) Partial Discharge Measurement	11322/1985	7 of 12
IV	Determination of Errors	Part 2 & 3 IS 2705/1992	7 of 12
V	Short Time Current Test	9.6 - Part 1-IS 2705/1992	8 of 12
VI	a) Power Frequency Dry Withstand Test on Primary winding	9.3-Part 1- IS 2705/1992	9 of 12
	b) Partial Discharge Measurement	11322/1985	9 of 12
VII	Temperature cycle Test	Customer's requirement	10 of 12
VIII	a) Power Frequency Dry Withstand Test on Primary winding	9.3-Part 1- IS 2705/1992	11 of 12
	b) Partial Discharge Measurement	11322/1985	11 of 12
IX	Determination of Errors	Part 2 & 3 IS 2705/1992	12 of 12

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TEST REPORT NO. : PHV/07/576-3

SHEET : 3 OF 12

DATE : 26.06.2008

## TEST RESULTS :

### Ia. Power Frequency Dry Withstand Test on Primary Winding.

The power frequency voltage of 28 kV (rms) was applied between the H.V. terminal & earth ( All secondary windings & body connected together to earth) for 1 minute duration. The sample withstood the test voltage Satisfactorily.

### Ib. Measurement of partial discharge .

The power frequency voltage was applied and raised to the pre-stress voltage level (0.8x1.3 Um ) and maintained for < 10 seconds. The voltage was then reduced to partial discharge measuring level (1.1 Um/√3) and maintained for < 1 minute. The partial discharge magnitude measured at the measuring voltage level was **1 pC**.

Note : Limit of pd quantity = **50 pC**.

  
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<b>TEST REPORT NO : PHV/07/576-3</b>						Sheet No: 4 OF 12
<b>DATE : 26/06/2008</b>						
<b>II. LIGHTNING IMPULSE VOLTAGE WITHSTAND TEST:</b> (IS:2705-1992 Cl. No.9.8)						
<b>TEST PARAMETERS :-</b>						
No.of shots applied						: 05 +ve & 05-ve Polarity
No.of shots recorded						: First & Last (for both polarity)
Sr. No.	Impulse Voltage Applied To.	Earth Connected To	Test voltage in kVp	Polarity	Remarks	Report Sheet No.
1.	Primary side	Secondary & Body	53.51 kVp	Positive	Calibration Pulse	5 of 12
2.	Primary Side	Secondary & Body	75 ±3 % kVp	Positive	Withstood	6 of 12
3.	Primary Side	Secondary & Body	75 ±3 % kVp	Negative	Withstood	6 of 12
<i>[Signature]</i> <b>PREPARED BY</b>						<i>[Signature]</i> <b>CHECKED BY</b>

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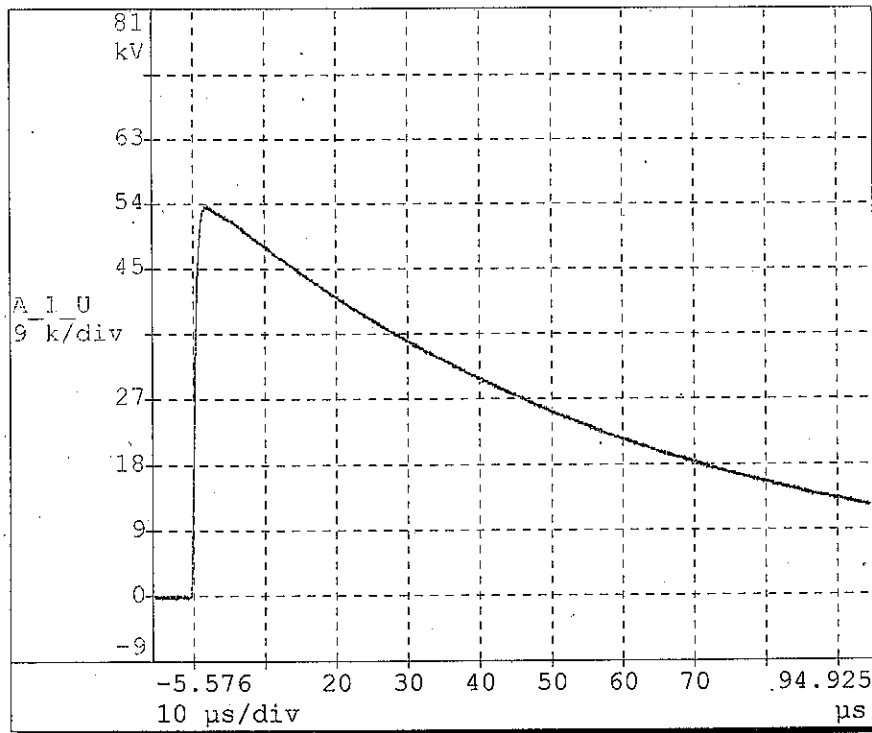
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TEST REPORT NO. : PHV/07/576-3  
 DATE : 26/06/2008

SHEET NO. : 5 OF 12

**LIGHTNING IMPULSE VOLTAGE WITHSTAND TEST ON CURRENT TRANSFORMER**

**CALIBRATION PULSE**



T1 : 1.3585 μs  
 T2 : 47.152 μs  
 kVp : 53.517 kVp

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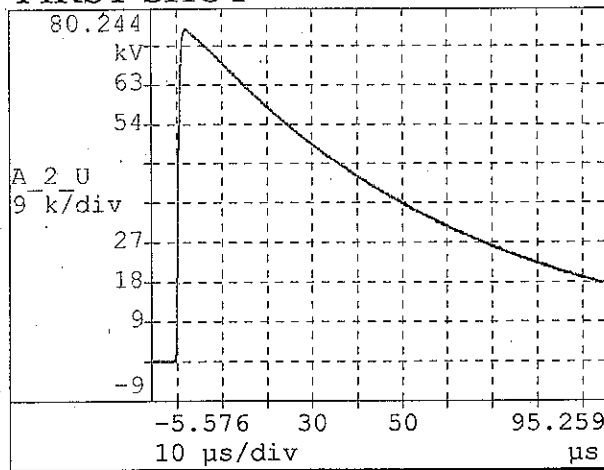
**TEST REPORT NO. : PHV/07/576-3**  
**DATE : 26/06/2008**

**SHEET NO. : 6 OF 12**

**LIGHTNING IMPULSE VOLTAGE WITHSTAND TEST ON CURRENT TRANSFORMER**

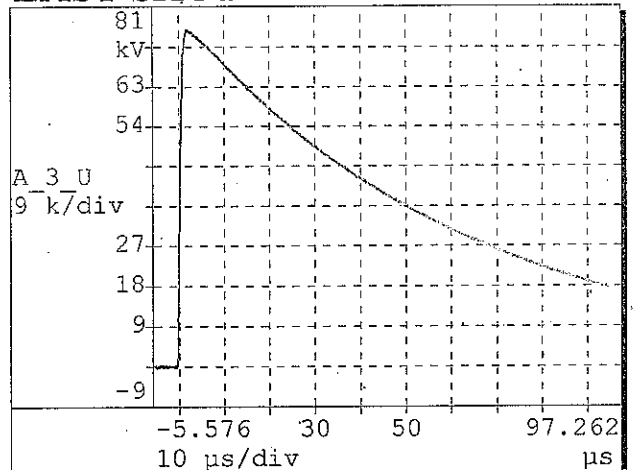
**POSITIVE POLARITY**

**FIRST SHOT**



T1 : 1.3559 μS  
 T2 : 47.267 μS  
 kVp : 75.583 kVp

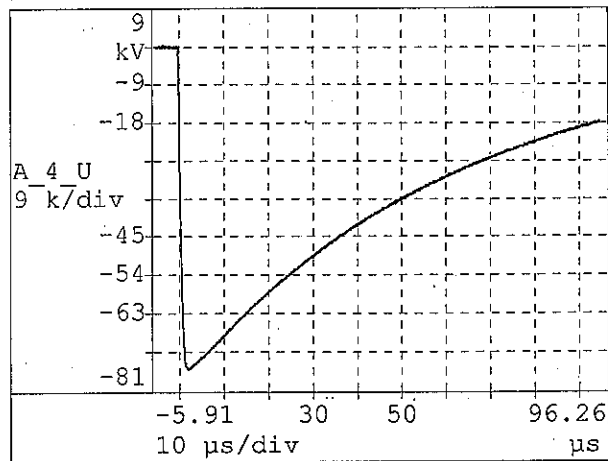
**LAST SHOT**



T1 : 1.3539 μS  
 T2 : 47.187 μS  
 kVp : 75.619 kVp

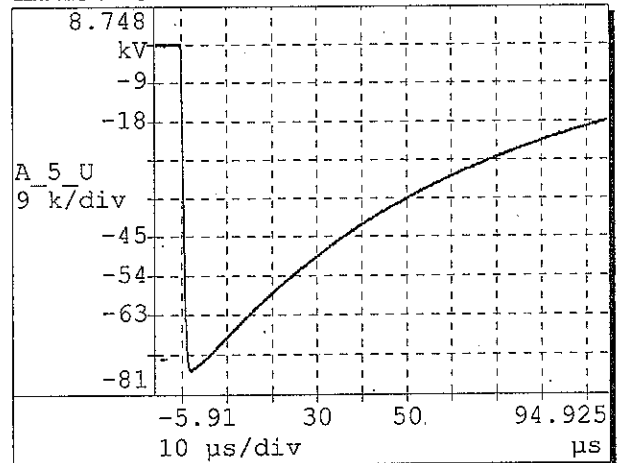
**NEGATIVE POLARITY**

**FIRST SHOT**



T1 : 1.3548 μS  
 T2 : 47.051 μS  
 kVp : -75.597 kVp

**LAST SHOT**



T1 : 1.3487 μS  
 T2 : 47.055 μS  
 kVp : -75.473 kVp

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TEST REPORT NO. : PHV/07/576-3

SHEET : 7 OF 12

DATE : 26.06.2008

## TEST RESULTS :

### IIIa. Power Frequency Dry Withstand Test on Primary Winding.

The power frequency voltage of 22.4 kV (80% of power frequency voltage) was applied between the H.V. terminal & earth (All secondary windings & body connected together to earth) for 1 minute duration. The sample withstood the test voltage Satisfactorily.

### IIIb. Measurement of partial discharge.

The power frequency voltage was applied and raised to the pre-stress voltage level (0.8x1.3 Um) and maintained for < 10 seconds. The voltage was then reduced to partial discharge measuring level (1.1 Um/√3) and maintained for < 1 minute. The partial discharge magnitude measured at the measuring voltage level was **1 pC**.

Note : Limit of pd quantity = **50 pC**.

### IV Determination of Errors according to the requirements of appropriate accuracy class.

#### CURRENT TRANSFORMER : BURDEN 15 VA, CLASS 1.0, CORE-I

% OF RATED BURDEN	% OF I RATED	RATIO ERROR IN %	PHASE ANGLE ERROR IN MIN.
-------------------	--------------	------------------	---------------------------

#### (A). RATIO: 300/1 A

100	120	0.571	1.60
100	100	0.553	1.53
100	20	0.401	6.93
100	5	0.207	15.27
25	120	0.883	5.01
25	100	0.883	4.37
25	20	0.871	6.39
25	5	0.770	11.87

#### CURRENT TRANSFORMER : BURDEN 15 VA, CLASS 5P, CORE-II

% OF RATED BURDEN	% OF I RATED	RATIO ERROR IN %	PHASE ANGLE ERROR IN MIN.
100	100	-0.237	1.52

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TEST REPORT NO. : PHV/07/576-3

SHEET : 8 OF 12

DATE : 26.06.2008

## TEST RESULTS :

### V. SHORT TIME CURRENT TEST

[Cl.No.9.6]

The short time current test was performed by connecting Copper cable to source as per test circuit diagram no.: OLSC/IT/13 and secondary winding short circuited through a copper link of negligible impedance.

Condition of the equipment under test: As after current error & phase displacement error

Test No.	Oscillogram No.	Short circuit current (kA)		Duration (sec.)	Remarks	Observation During test
		Peak	Rms.			
1.	216/01	65.508	-	0.074	Dynamic peak test	No abnormality observed
2.	216/02	-	26.210	1.021	Thermal Current test	No abnormality observed

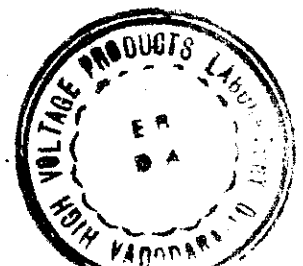
Observation after test: - No visible damage was observed.

- CT body was intact.

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TEST REPORT NO. : PHV/07/576-3

SHEET : 9 OF 12

DATE : 26.06.2008

## TEST RESULTS :

### VIa. Power Frequency Dry Withstand Test on Primary Winding.

The power frequency voltage of 22.4 kV (80% of power frequency voltage ) was applied between the H.V. terminal & earth ( All secondary windings & body connected together to earth) for 1 minute duration. The sample withstood the test voltage Satisfactorily.

### VIb. Measurement of partial discharge .

The power frequency voltage was applied and raised to the pre-stress voltage level (0.8x1.3 Um ) and maintained for < 10 seconds. The voltage was then reduced to partial discharge measuring level (1.1 Um/ $\sqrt{3}$ ) and maintained for < 1 minute. The partial discharge magnitude measured at the measuring voltage level was **1 pC**.

Note : Limit of pd quantity = **50 pC**.

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TEST REPORT NO. : PHV/07/576-3

SHEET : 10 OF 12

DATE : 26.06.2008

## TEST RESULTS:

### VII. TEMPERATURE CYCLE TEST

Sr. no.	Clause no.	Particulars of tests	Requirements as per specification	Obtained value	Remarks
1.0	As per customer's requirement	Temperature cycle test  Sample was kept in the test chamber .  Temperatures  No. of cycle  After 5 <sup>th</sup> cycle the chamber was stopped.	-25°C for 4 hours & + 80°C for 4 hours  5	-25°C for 4 hours & + 80°C for 4 hours  5	-----

Observation: No Physical damage observed on the sample after completion of temperature cycle test

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TEST REPORT NO. : PHV/07/576-3

SHEET : 11 OF 12

DATE : 26.06.2008

**TEST RESULTS :**

**VIIIa. Power Frequency Dry Withstand Test on Primary Winding.**

The power frequency voltage of 22.4 kV (80% of power frequency voltage ) was applied between the H.V. terminal & earth ( All secondary windings & body connected together to earth ) for 1 minute duration. The sample withstood the test voltage Satisfactorily.

**VIIIb. Measurement of partial discharge .**

The power frequency voltage was applied and raised to the pre-stress voltage level (0.8x1.3 Um ) and maintained for < 10 seconds. The voltage was then reduced to partial discharge measuring level (1.1 Um/√3) and maintained for < 1 minute. The partial discharge magnitude measured at the measuring voltage level was **1 pC**.

Note : Limit of pd quantity = **50 pC**.

  
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TEST REPORT NO. : PHV/07/576-3

SHEET : 12 OF 12

DATE : 26.06.2008

## TEST RESULTS :

### IX Determination of Errors according to the requirements of appropriate accuracy class.

#### CURRENT TRANSFORMER : BURDEN 15 VA, CLASS 1.0 , CORE-I

% OF RATED BURDEN	% OF I RATED	RATIO ERROR IN %	PHASE ANGLE ERROR IN MIN.
(A). RATIO: 300/1 A			
100	120	0.509	2.24
100	100	0.486	2.84
100	20	0.282	11.06
100	5	0.052	21.40
25	120	0.878	6.00
25	100	0.874	6.44
25	20	0.863	11.02
25	5	0.842	19.35

#### CURRENT TRANSFORMER : BURDEN 15 VA, CLASS 5P , CORE-II

% OF RATED BURDEN	% OF I RATED	RATIO ERROR IN %	PHASE ANGLE ERROR IN MIN.
100	100	-0.205	2.87

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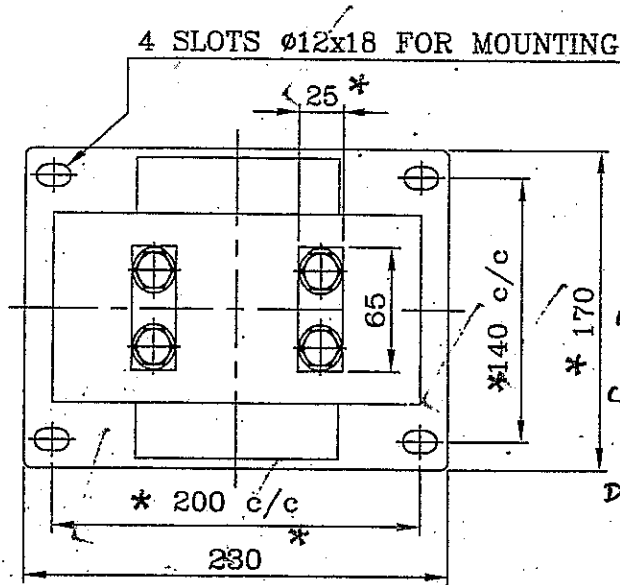
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REF: DRG. NO. : 3044/3045/3046

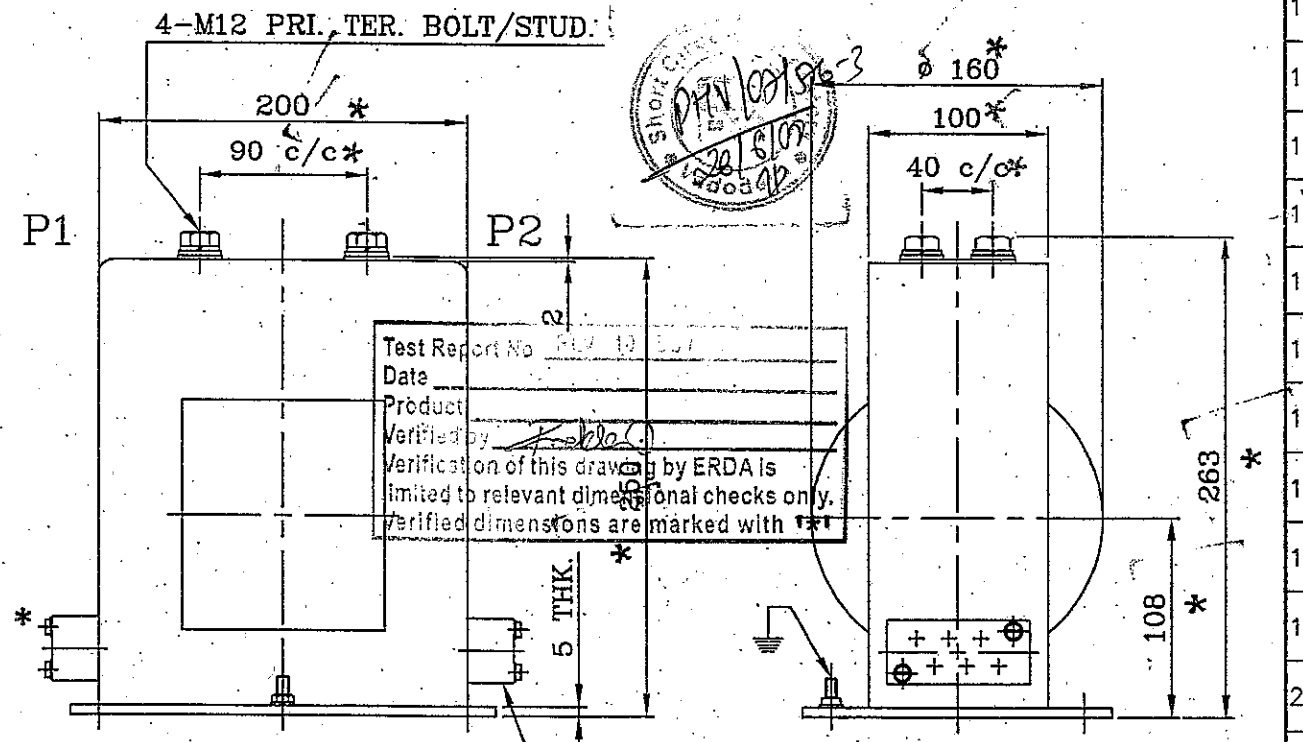
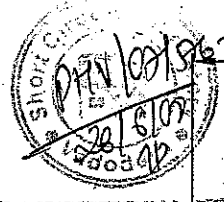
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A B C D E F G H I J K L M N O P Q R S



DRG.NO	3044	
SR.NO	CT02089388	
RATIO	300/1-1 Amp.	
RATED BURDEN	15VA	15VA
ACC. CLASS	1.0	5P
I.S.F/A.L.F	-	10
S.T.C	26.2 KA FOR 1 SEC.	
INS.LEVEL	12/28/75 KV	

PRIMARY NO.OFTURNS: 2  
 SECONDARY CORE I: 600  
 CORE II: 600  
 CROSS SECTIONAL AREA: 204.83mm<sup>2</sup>  
 CORE I: 0.5189mm<sup>2</sup>  
 CORE II: 0.6567mm<sup>2</sup>  
 DIAMETER: 0.3mm CORE I: 0.813mm  
 CORE II: 0.914mm



Test Report No. \_\_\_\_\_  
 Date \_\_\_\_\_  
 Product \_\_\_\_\_  
 Verified by \_\_\_\_\_  
 Verification of this drawing by ERDA is limited to relevant dimensional checks only. Verified dimensions are marked with \*

SEC. TER. WITH CAP.

**CONTROLLED COPY**

\* : PROVISION ON THIS SIDE TO BE MADE ONLY IF ABSOLUTELY NECESSARY.

SCALE	N. T. S.	SURFACE FINISH	QTY.	WEIGHT
REF.	-	-	1NO.	Kgs.
DATE	16/06/2004	-	EACH.	APPROX.
CHECK	<i>atit</i>	MATRL :	-	
DRAWN	VIJAY.	R.M.SIZE :	-	

NOTE : TOLERANCE WHEREVER NOT MENTIONED ± 3MM.



Silkaans Electrical Mfg.Co.Pvt.Ltd.,  
 NAVI MUMBAI. - 400 701.

PROJECTION	NAME : RESIN CAST WOUND
	PRIMARY CURRENT TRANSFORMER.
	DRG. NO. : 3044

A B C D E F G H I J K L M N O P Q R S



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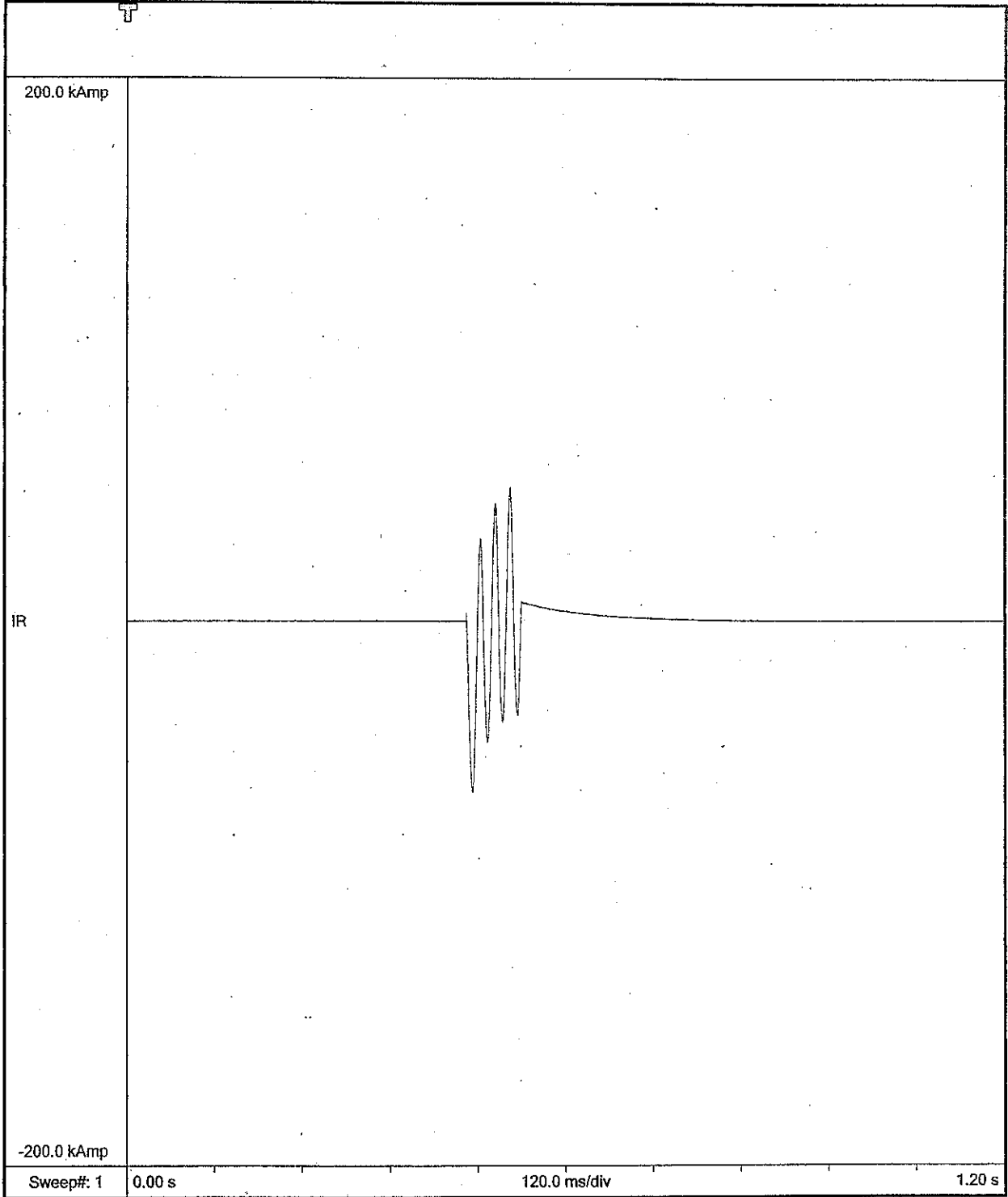
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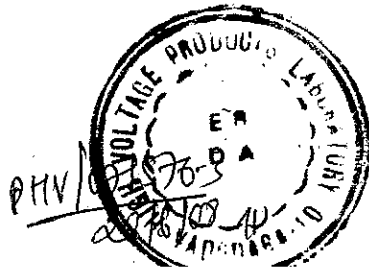


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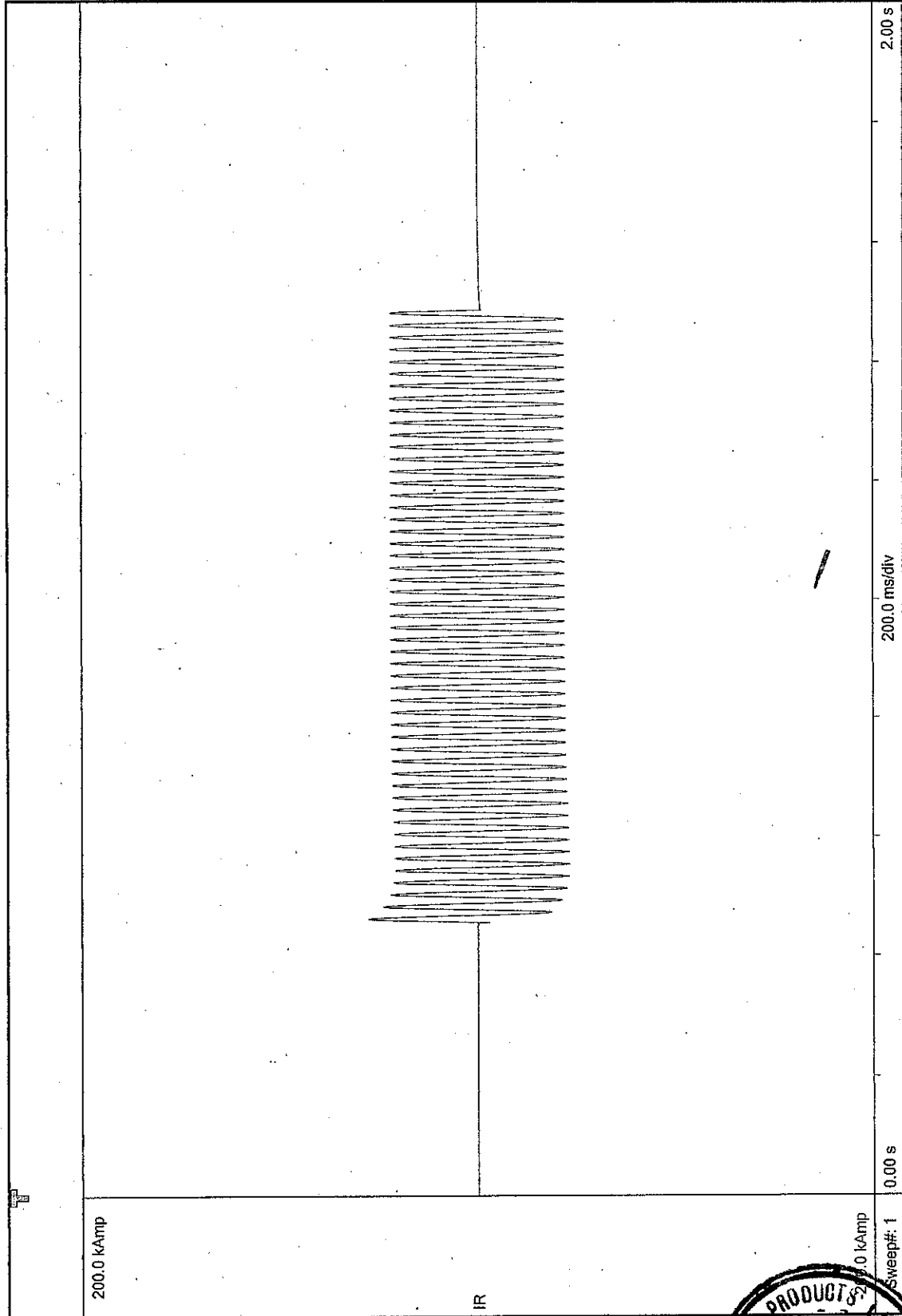
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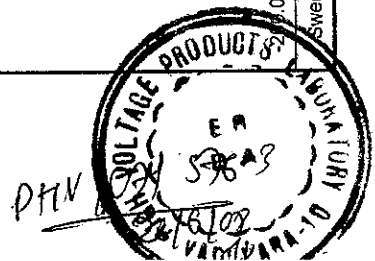
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OSCILLOGRAM NO.:216/02





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