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TEST REPORT

SHEET 1 OF 9

NAME & ADDRESS OF CUSTOMER RAJASTHAN POWERGEN TRANSFORMER PVT. LTD. Khasra No. 911-914, Karola-Bhinmal Road, Karola, Sanchoore, Rajasthan-343041 (India).	REPORT NO.: RP-1718-052876 DATE: 24.01.2018	
	CUSTOMER REF. No.: NP/ERDA/TT/39/ 2017-18	DATED: 29.11.2017
	DATE OF SAMPLE RECEIPT: 05.12.2017	DATE OF TESTING: 07.12.2017 to 09.01.2018
	SAMPLE DESCRIPTION 500kVA DISTRIBUTION TRANSFORMER (Energy efficiency level 2) 11000/433 Volts, 26.25/666.7 Amps, Oil filled, Vector Group: Dyn-11 Further details as per sheet No. 3 of 9	
SAMPLE IDENTIFICATION ERDA Sample Code No.: ERDA-00229816 SERIAL NO.: RPTPL/500KVA/2017-18/001 TYPE: Outdoor, Oil cooled YEAR OF MFG.: 2017 DRAWING NO.: RPTPL/500KVA/001, RPTPL/500KVA/002, RPTPL/500KVA/003.		
TEST DETAILS Short-circuit withstand test (Ability of transformers to withstand external short circuit) (Cl. No. 17 & 21.4 b)		TEST SPECIFICATIONS IS 1180 (Part 1): 2014 [AMENDMENT NO. 1 AUGUST 2016] [AMENDMENT NO. 2 JANUARY 2017]
ENCLOSURES: NUMBER OF OSCILLOGRAMS : Eleven NUMBER OF PHOTOGRAPH : One NUMBER OF TEST CIRCUIT DIAGRAM : One NUMBER OF DRAWINGS : Three		
REMARKS: The sample conforms to the requirements of short circuit withstand test as per standard.		
PREPARED BY 	CHECKED BY 	APPROVED BY (YASHINKHAN I. PATHAN)

NOTE: 1. This report relates only to the particular sample received in good condition for testing at 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 by customer have been carried out.

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DATE: 24.01.2018

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5. Oscillogram No.	706/01 to 706/11
6. Photograph No.	1718-014491-618
7. Test circuit diagram No.	OLSC/DTC/03
8. Drawing No.	RPTPL/500KVA/001, RPTPL/500KVA/002, RPTPL/500KVA/003.


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SHEET 3 OF 9

TECHNICAL SPECIFICATIONS ASSIGNED BY CUSTOMER

1. Name of Manufacturer	: RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.
2. Equipment	: 500kVA Distribution Transformer
3. Standard No.	: IS 1180 (Part 1): 2014 [AMENDMENT NO. 1 AUGUST 2016] [AMENDMENT NO. 2 JANUARY 2017]
4. Serial No.	: RPTPL/500KVA/2017-18/001
5. Type	: Outdoor, Oil cooled
6. kVA rating	: 500
7. Rated voltage H.V. (volts)	: 11000
L.V. (volts)	: 433
8. Rated current H.V. (Amp.)	: 26.25
L.V. (Amp.)	: 666.7
9. Number of phases	: 3
10. Energy efficiency level	: 2
11. Connection H.V. / L.V.	: Delta/Star
12. Frequency	: 50 Hz
13. Type of cooling	: ONAN
14. Temperature rise of oil	: 40 °C
15. Percentage Impedance	: 4.5 %
16. Primary winding conductor	: Copper wire, bare dia. 3.5 mm
17. Secondary winding conductor	: Copper strip, bare size(10.9mm x 3.2mm) x 12 Nos. in Parallel
18. Quantity of oil (Liter)	: 480
19. Weight of oil (Kg.)	: 400
20. Weight of core and winding (Kg.)	: 1460
21. Total weight (Kg.)	: 2330
22. Vector group	: Dyn-11
23. Year of manufacture	: 2017
24. Insulation level H.V.	: 28 kVrms
25. Insulation level L.V.	: 03 kVrms
26. Total losses at 75°C (Watts)	: At 50 % load=1510 (Max.) : At 100 % load=4300 (Max.)

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SHEET 4 OF 9

DATE: 24.01.2018

ROUTINE TEST RESULTS BEFORE SHORT CIRCUIT

a) WINDING RESISTANCE

Measurement at average oil temperature: 28.2 °C					
LV Winding resistance (mΩ)			HV Winding resistance (Ω)		
u - v	v - w	w - u	U - V	V - W	W - U
1.646	1.652	1.665	1.454	1.456	1.454

b) VOLTAGE RATIO AND CHECK OF VOLTAGE VECTOR RELATIONSHIP

Vector group: Dyn-11 was verified.

Rated voltage Ratio	Measured voltage ratio between Terminals					
	U-V/u-n	Difference (%)	V-W/v-n	Difference (%)	W-U/w-n	Difference (%)
44.001	44.065	0.145	44.186	0.420	44.068	0.152

c) MEASUREMENT OF IMPEDANCE VOLTAGE/SHORT CIRCUIT IMPEDANCE
LOAD LOSSES

1) At 100% LOAD:-

Average oil temp.: 26.5 °C, Frequency: 50.007 Hz.

Test current (Amp.) I _{avg.}	Impedance voltage (V) V _{avg.}	Load loss measured (Watts)	Impedance Voltage (%Z) At 50 Hz.	Load loss computed at 75°C (Watts)	%Z at 75°C
26.25	510.51	3002	4.640	3417	4.651

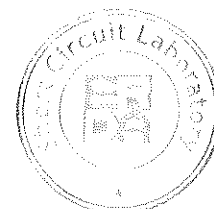
2) At 50% LOAD:-

Average oil temp.: 26.5 °C, Frequency: 49.929 Hz.

Test current (Amp.) I _{avg.}	Impedance voltage (V) V _{avg.}	Load loss measured (Watts)	Load loss computed at 75°C (Watts)
13.13	254.73	750	854

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d) NO LOAD CURRENT AND LOSSES

Average oil temp.: 26.5°C, Frequency: 50.001 Hz.

Applied Voltage (V) Vavg	Current (Amp.) Iavg.	Losses Measured (Watts)
433.13	1.23	565

Total losses at 100 % of the full load current, computed at 75°C : 3982 W
Total losses at 50 % of the full load current, computed at 75°C : 1419 W

e) INSULATION RESISTANCE TEST

Average oil temp.: 28.3°C, Measured at Voltage: 1000 V DC

	IR value (MΩ)
HV to LV winding	>2000
HV winding to LV +EARTH	>2000
LV winding to HV + EARTH	>2000

f) SEPARATE SOURCE POWER FREQUENCY WITHSTAND TEST

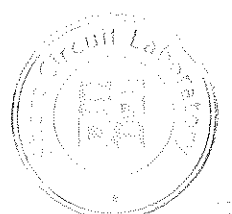
Sr. No.	Test	Applied voltage (kV)	Duration (sec.)	Remarks
1.	Between HV windings and LV windings connected to the tank and earth	28	60	Withstood
2.	Between LV windings and HV windings connected to the tank and earth	03	60	Withstood

g) INDUCED OVER VOLTAGE WITHSTAND TEST

Sr. No.	Test	Applied voltage (V)	Applied Freq. (Hz.)	Duration (sec.)	Remarks
1.	Between LV windings with tank connected to earth.	866	100	60	Withstood

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**REPORT NO.:** RP-1718-052876**SHEET 6 OF 9****DATE:** 24.01.2018**SHORT-CIRCUIT WITHSTAND TEST:**

(Ability of transformers to withstand external short circuit)

The verification of the short-circuit withstand test was performed by connecting the low voltage winding to three phase balanced source and high voltage winding short circuited using synchronization switch. The test conducted with short circuiting of the high voltage winding, follow the application of the voltage to the low voltage winding of the transformer as per schematic circuit diagram No.: OLSC/DTC/03.

Condition of the equipment under test: As after routine tests.

Test No.	Oscillogram No.	Applied voltage (Vrms)	Short circuit current on LV (kA)			Duration (sec.)	Remarks
			Peak	RMS	Average		
1.	706/01	-	26.879 - -	12.612 11.926 11.873	12.137	0.081	Calibration Shot
2.	706/02	433.6	31.990 - -	14.270 14.307 14.127	14.235	0.508	No Abnormality
3.	706/03	433.8	32.283 - -	14.934 14.574 14.147	14.552	0.509	No Abnormality
4.	706/04	433.7	32.114 - -	15.192 14.516 14.190	14.633	0.509	No Abnormality
5.	706/05	433.6	- - 33.250	14.261 14.010 14.053	14.108	0.508	No Abnormality
6.	706/06	433.5	- - 32.969	14.306 14.267 14.519	14.364	0.509	No Abnormality
7.	706/07	433.7	- - 32.554	14.536 14.472 15.040	14.683	0.509	No Abnormality
8.	706/08	433.8	- 31.776 -	14.330 14.739 14.171	14.414	0.509	No Abnormality
9.	706/09	433.6	- 33.701 -	14.237 14.259 14.526	14.341	0.509	No Abnormality
10.	706/10	433.8	- 32.439 -	14.352 14.943 14.642	14.646	0.509	No Abnormality
11.	706/11	433.9	- 32.774 -	14.246 14.440 14.174	14.287	2.001	No Abnormality (Thermal Shot)

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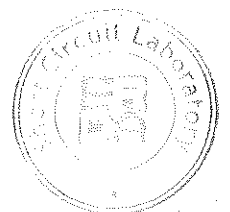
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**REPORT NO.:** RP-1718-052876**SHEET 7 OF 9****DATE:** 24.01.2018**Measurement of the % reactance during the short circuit test**

LV winding was short circuited. Three phase AC supply was connected to HV winding to pass test current. Before the short circuit test and after each shot, the per phase percentage reactance was measured and compared to the values before the short circuit test.

Sr. No.	Measurement performed		Measured value of % reactance at 50 Hz.			%Change in % reactance		
			U	V	W	U	V	W
1.	Before test		4.596	4.595	4.623	-	-	-
2.	After the test no.	2.	4.607	4.618	4.636	0.239	0.501	0.281
3.	After the test no.	3.	4.612	4.615	4.632	0.348	0.435	0.195
4.	After the test no.	4.	4.615	4.616	4.633	0.413	0.457	0.216
5.	After the test no.	5.	4.617	4.616	4.633	0.457	0.457	0.216
6.	After the test no.	6.	4.614	4.619	4.639	0.392	0.522	0.346
7.	After the test no.	7.	4.619	4.619	4.635	0.500	0.522	0.260
8.	After the test no.	8.	4.623	4.612	4.639	0.587	0.370	0.346
9.	After the test no.	9.	4.616	4.624	4.641	0.435	0.631	0.389
10.	After the test no.	10.	4.613	4.627	4.639	0.370	0.696	0.346
11.	After the test no.	11.	4.621	4.626	4.637	0.544	0.675	0.303

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ROUTINE TEST RESULTS AFTER SHORT CIRCUIT

a) WINDING RESISTANCE

Measurement at average oil temperature: 31.8 °C					
LV Winding resistance (mΩ)			HV Winding resistance (Ω)		
U - V	V - W	W - U	U - V	V - W	W - U
1.653	1.653	1.666	1.463	1.464	1.463

b) VOLTAGE RATIO AND CHECK OF VOLTAGE VECTOR RELATIONSHIP

Vector group: Dyn-11 was verified.

Rated voltage Ratio	Measured voltage ratio between Terminals					
	U-V/u-n	Difference (%)	V-W/v-n	Difference (%)	W-U/w-n	Difference (%)
44.001	44.044	0.098	44.165	0.373	44.047	0.105

c) MEASUREMENT OF IMPEDANCE VOLTAGE/SHORT CIRCUIT IMPEDANCE LOAD LOSSES

1) At 100% LOAD:-

Average oil temp.: 29.5 °C, Frequency: 49.910 Hz.

Test current (Amp.) Iavg.	Impedance voltage (V) Vavg.	Load loss measured (Watts)	Impedance Voltage (%Z) At 50 Hz.	Load loss computed at 75 °C (Watts)	%Z at 75 °C
26.26	516.62	3025	4.703	3407	4.713

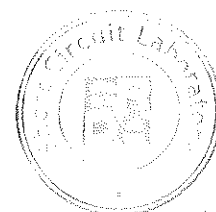
2) At 50% LOAD:-

Average oil temp.: 29.5 °C, Frequency: 49.886 Hz.

Test current (Amp.) Iavg.	Impedance voltage (V) Vavg.	Load loss measured (Watts)	Load loss computed at 75 °C (Watts)
13.14	256.29	755	850

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d) NO LOAD CURRENT AND LOSSES

Average oil temp.: 29.5 °C, Frequency: 50.001 Hz

Applied Voltage (V) Vavg	Current (Amp.) Iavg.	Losses Measured (Watts)
433.05	1.19	554

Total losses at 100 % of the full load current, computed at 75°C : 3961 W

Total losses at 50 % of the full load current, computed at 75°C : 1404 W

e) INSULATION RESISTANCE TEST

Average oil temp.: 31.9 °C, Measured at Voltage: 1000 V DC

	IR value (MΩ)
HV to LV winding	>2000
HV winding to LV + EARTH	>2000
LV winding to HV + EARTH	>2000

f) SEPARATE SOURCE POWER FREQUENCY WITHSTAND TEST

Sr. No.	Test	Applied voltage (kV)	Duration (sec.)	Remarks
1.	Between HV winding and LV winding connected to the tank and earth	28	60	Withstood
2.	Between LV winding and HV winding connected to the tank and earth	03	60	Withstood

g) INDUCED OVER VOLTAGE WITHSTAND TEST

Sr. No.	Test	Applied voltage (V)	Applied Freq. (Hz.)	Duration (sec.)	Remarks
1.	Between LV windings with tank connected to earth.	866	100	60	Withstood

Observation after test: The transformer was untanked and inspected.

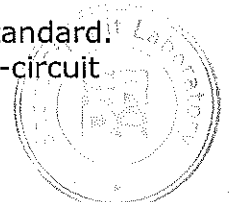
- Condition of conductor, core and clampings:
- No visible damage, deformation or displacement.
- Condition of spacers : Intact
- Condition of oil : Clear

Results: 1) % Change in % reactance is **within** tolerance limits as per standard.
2) The results of routine tests carried out before and after short-circuit withstand test found **within** limits as per standard.

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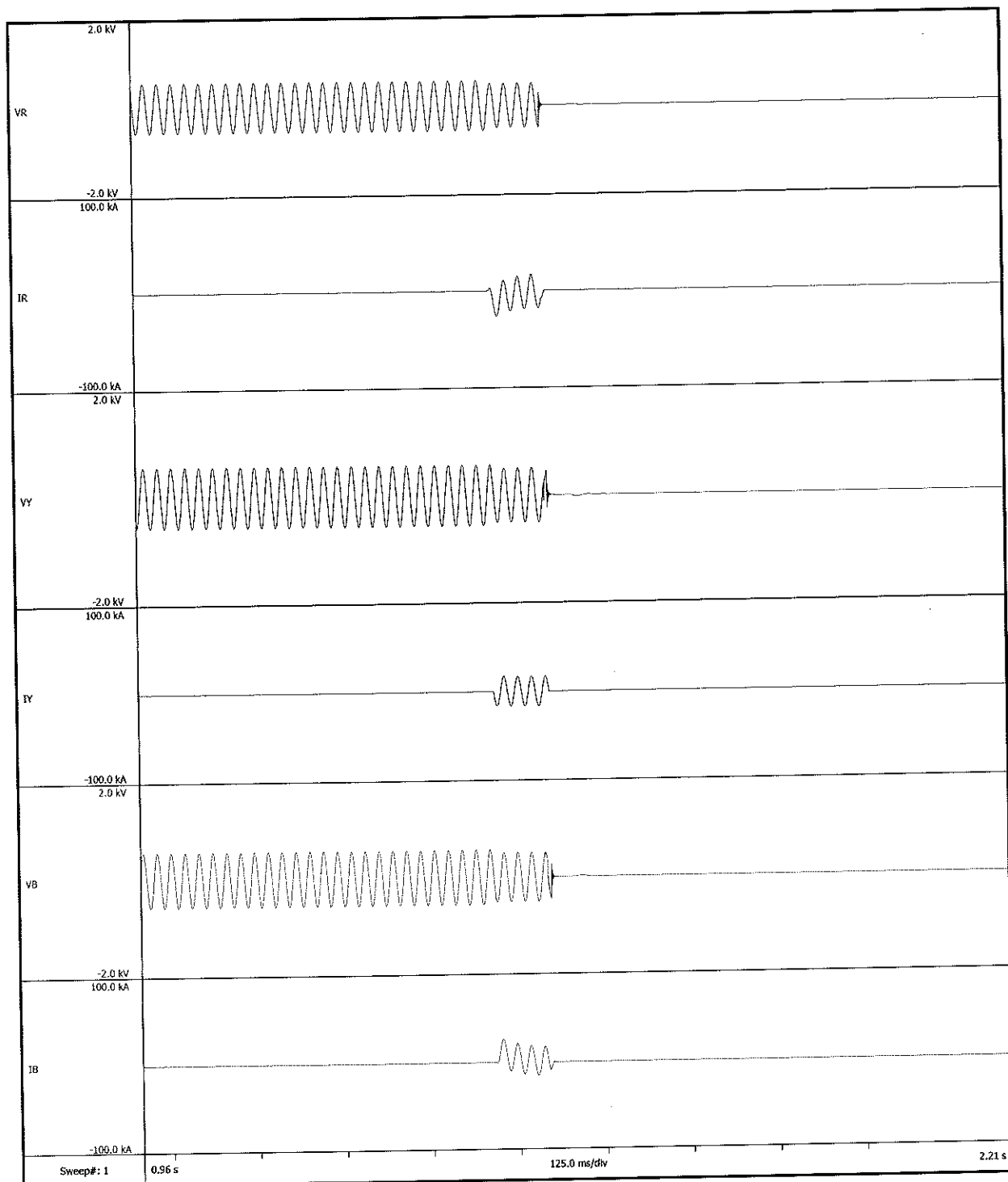
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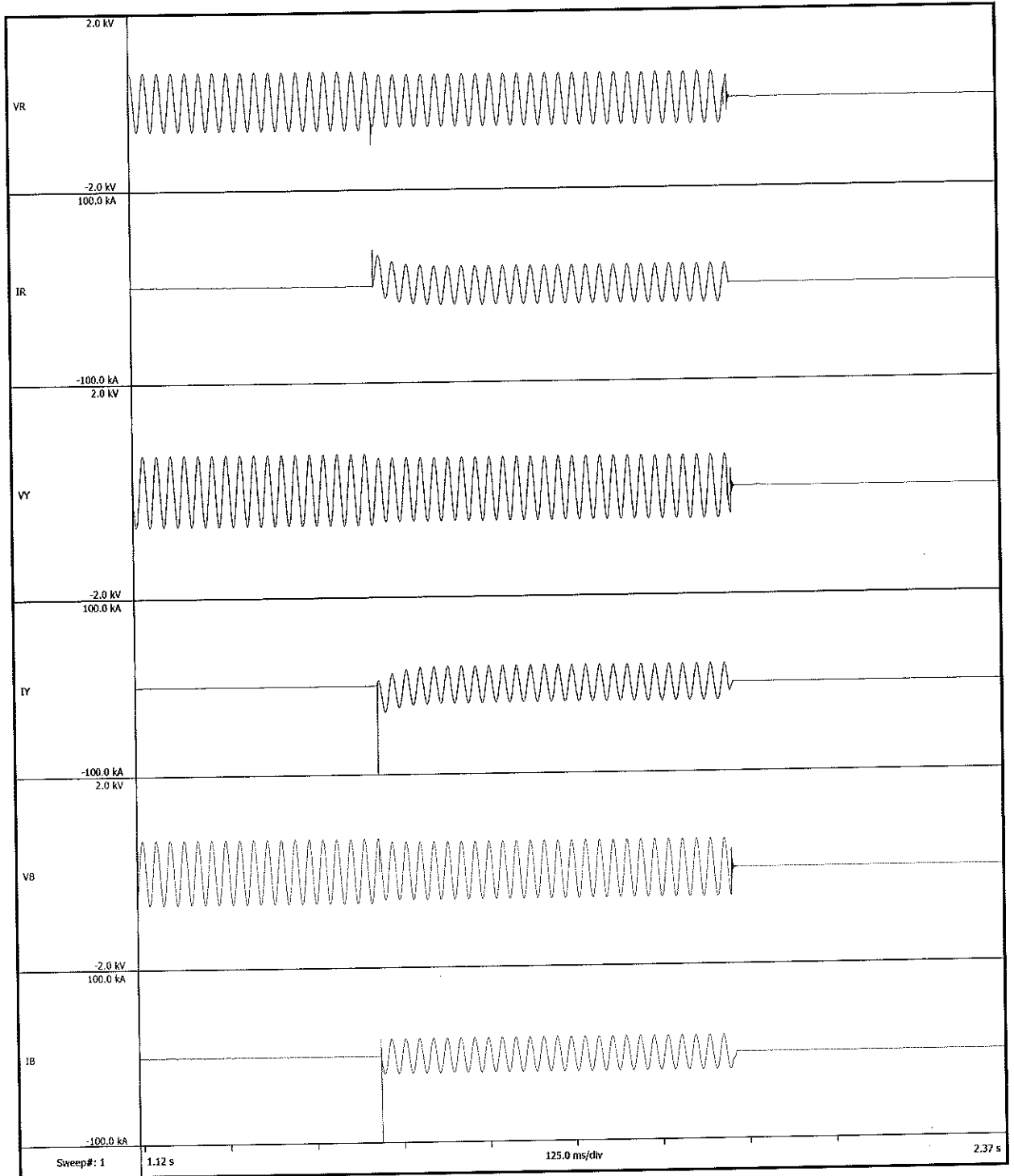
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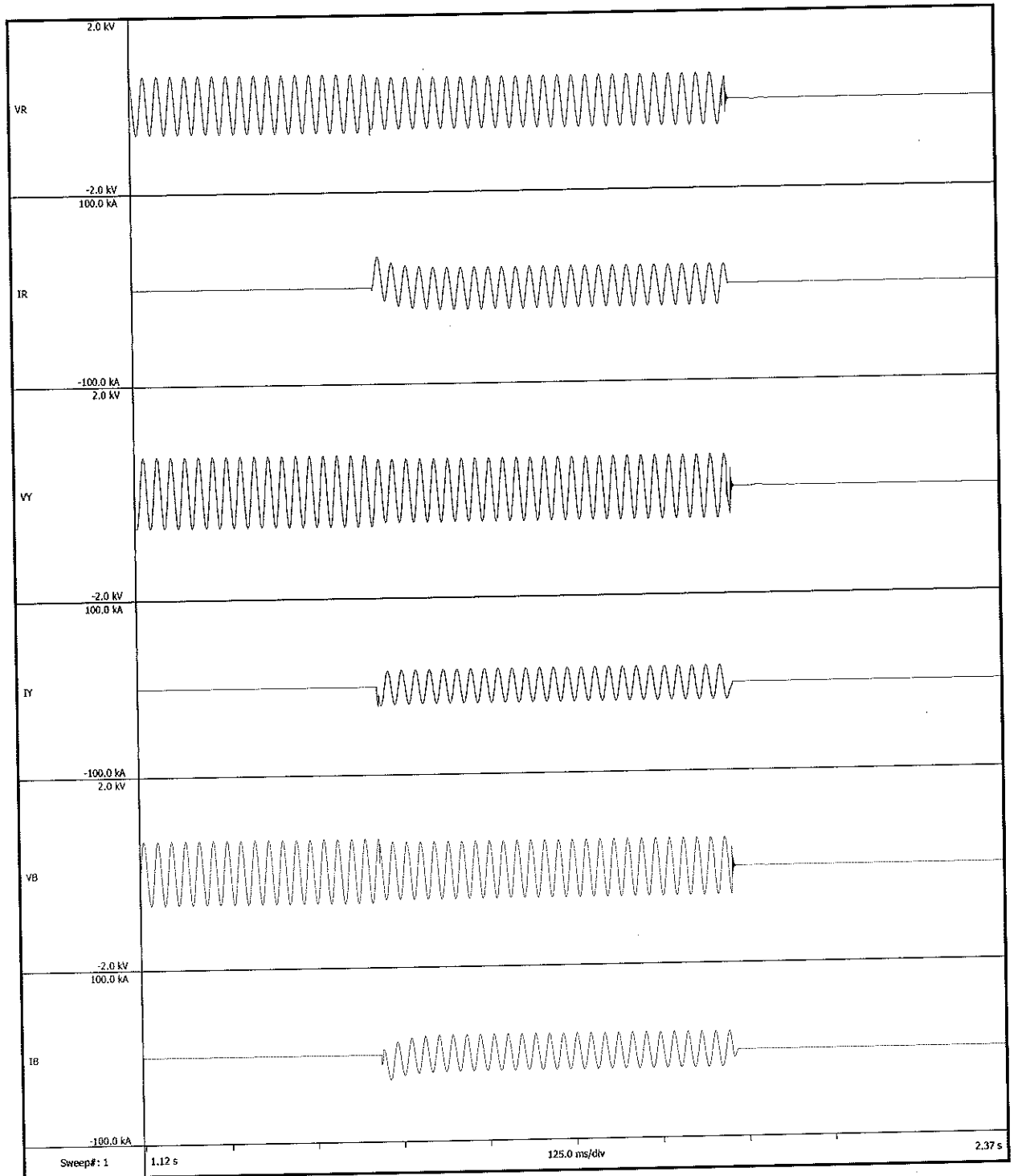
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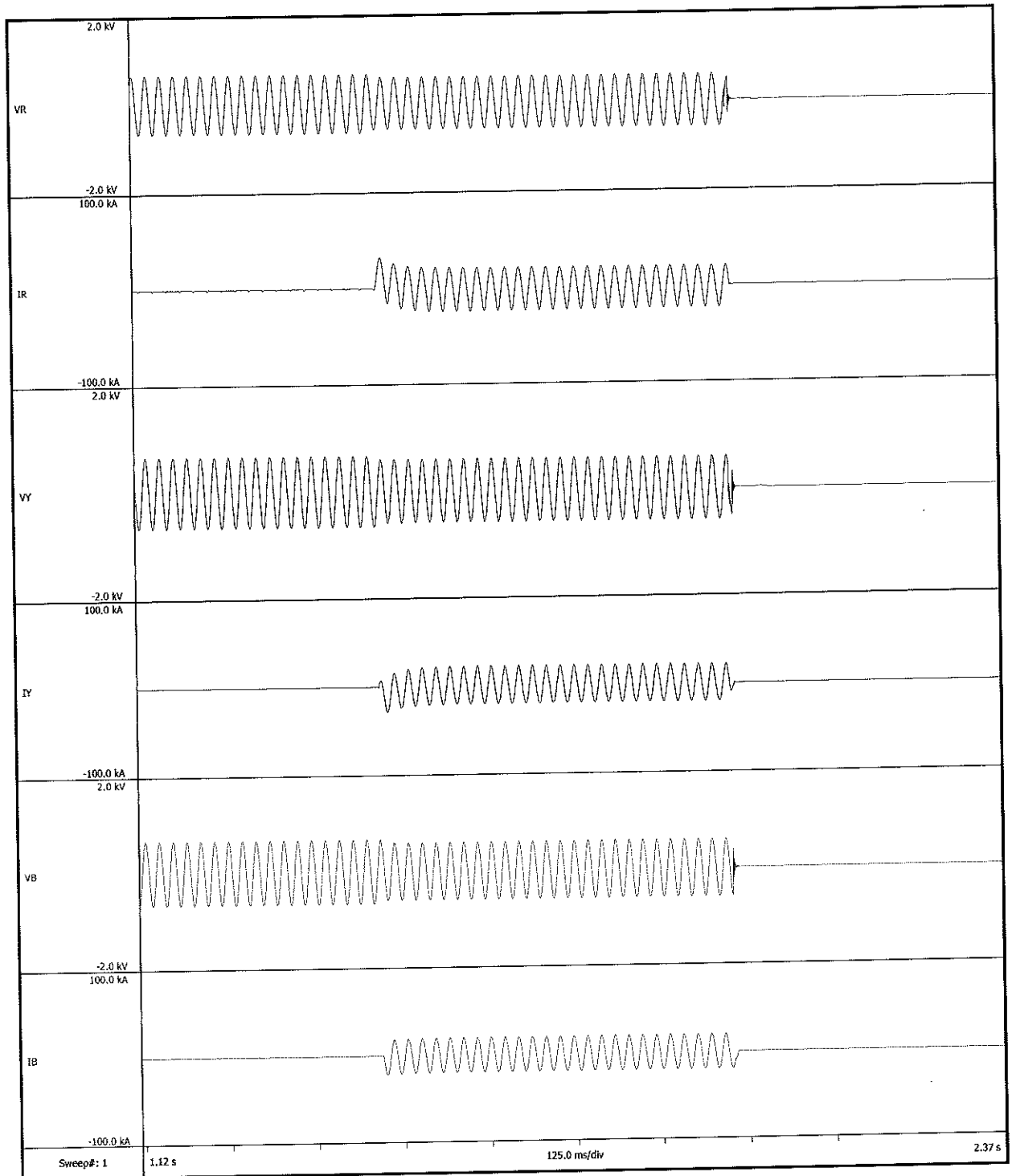
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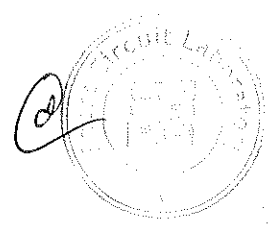


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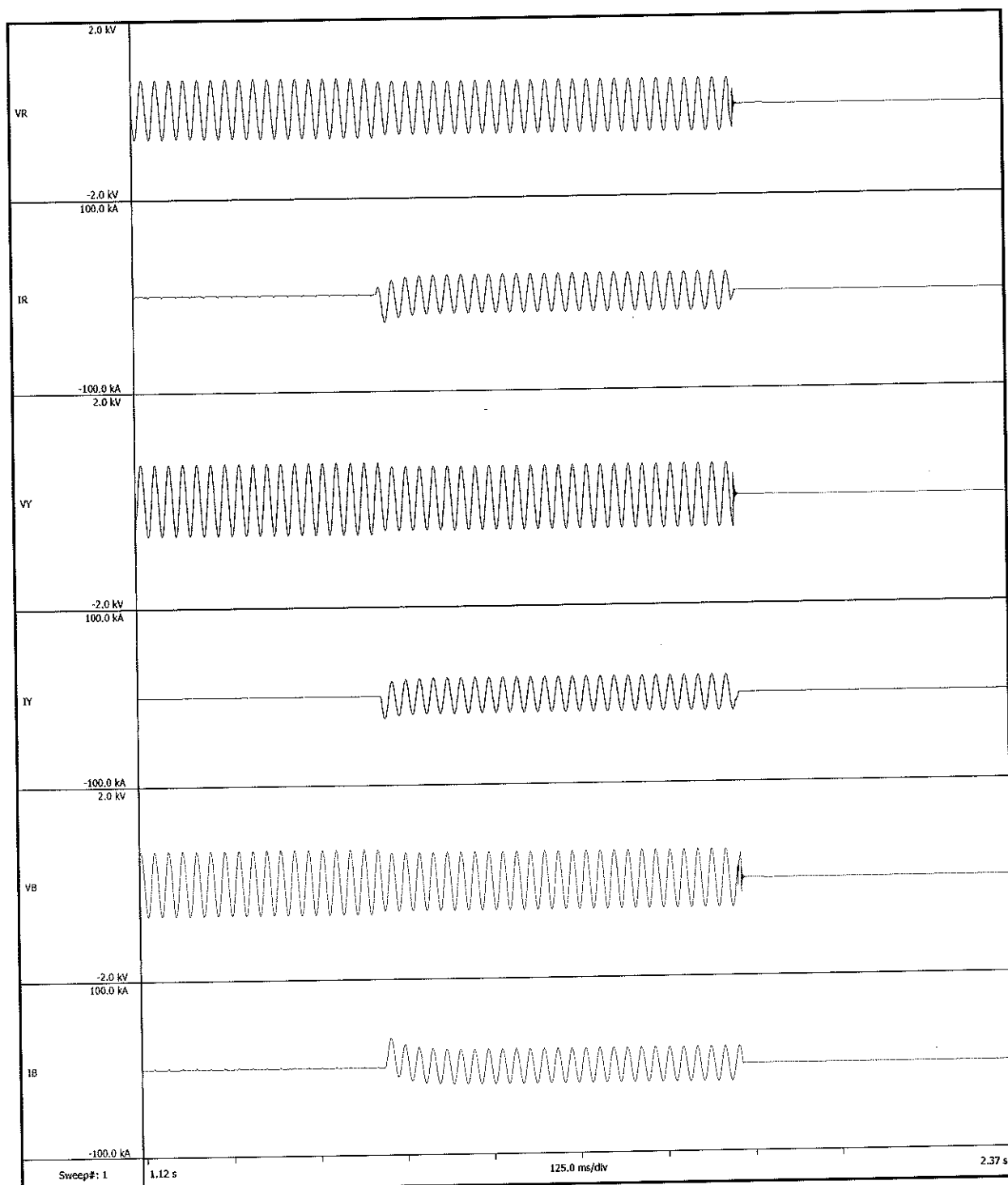
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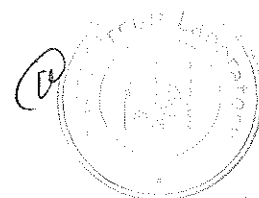
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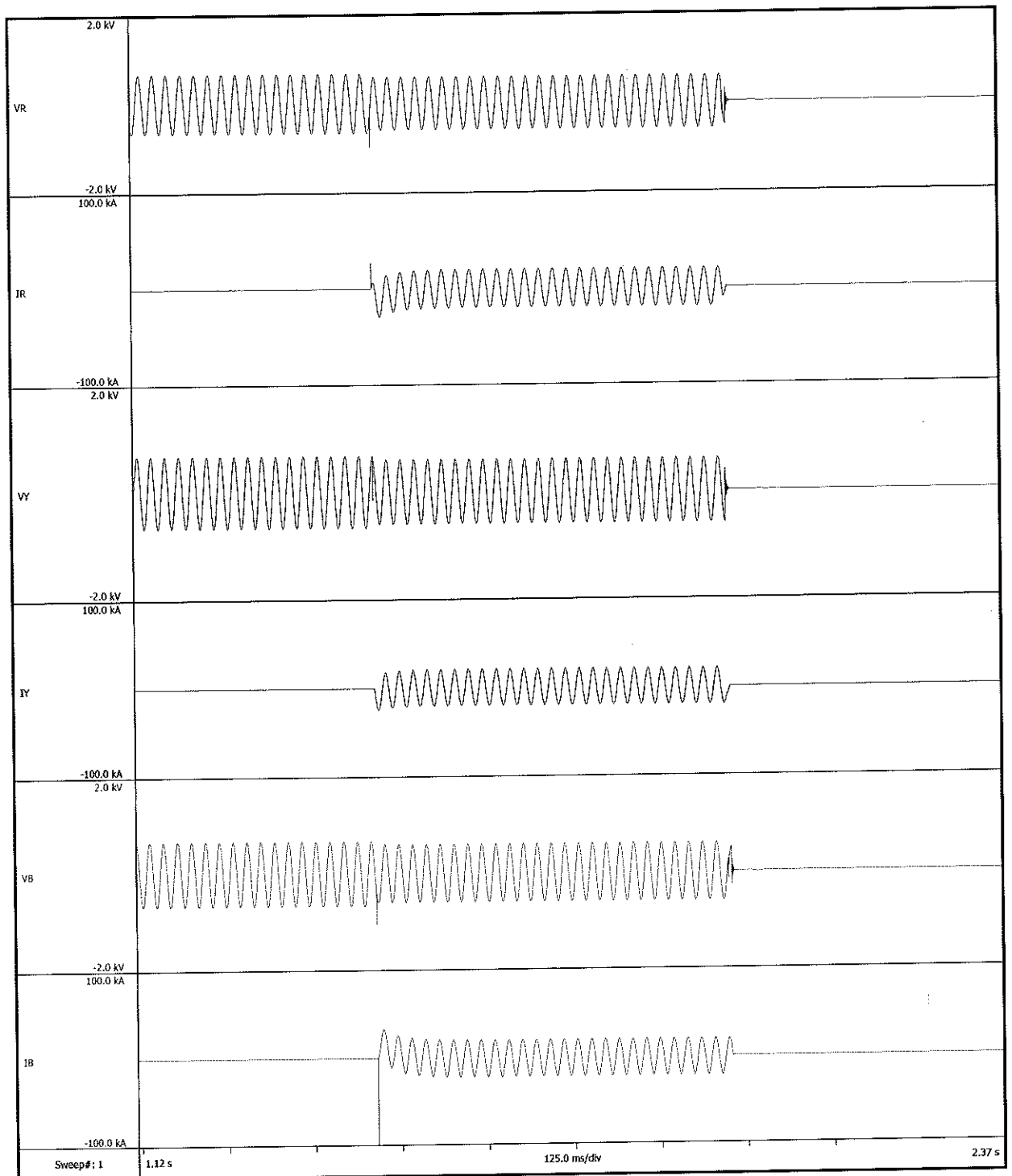
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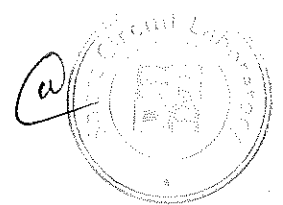
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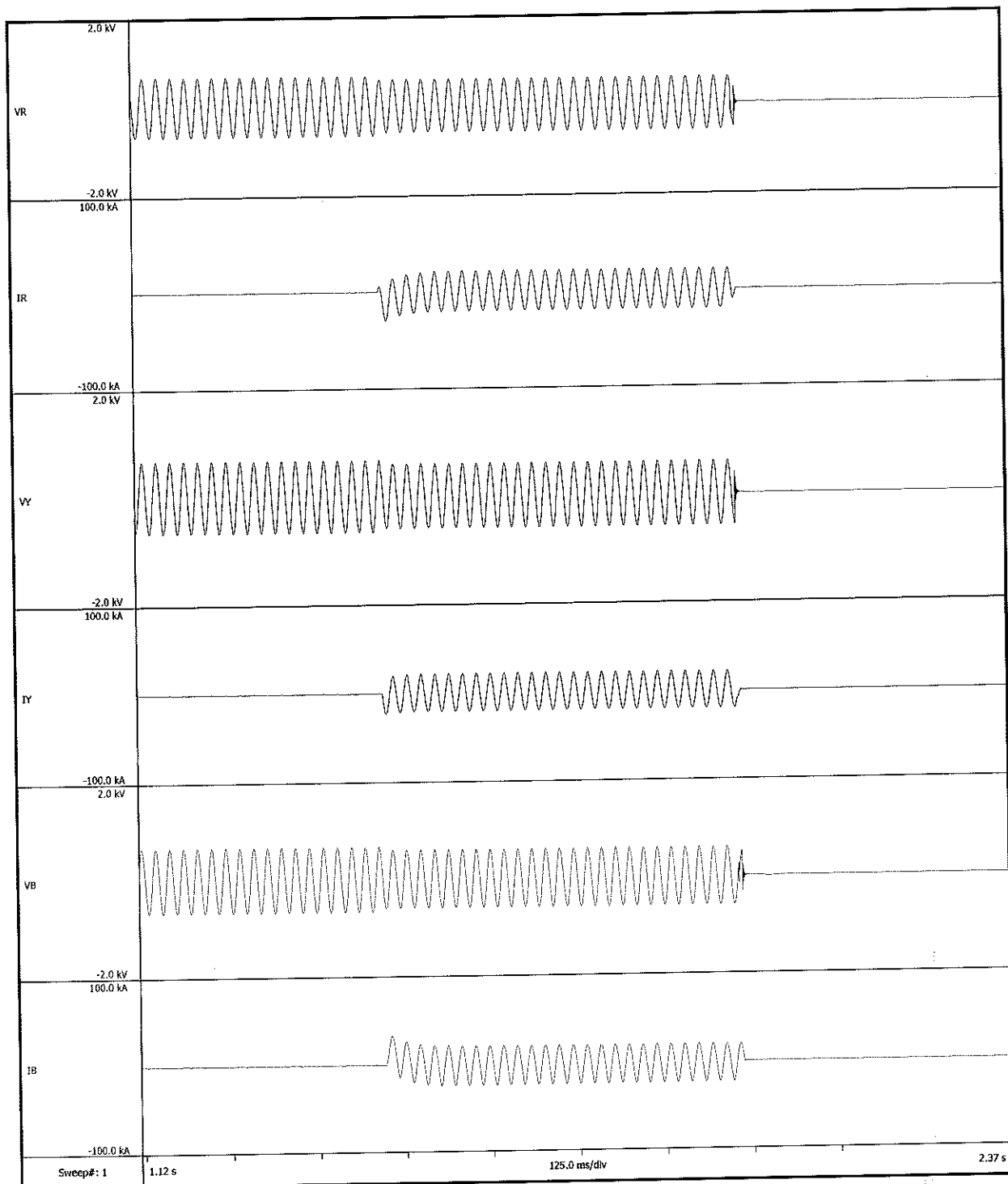
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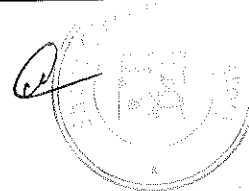


REPORT NO.: RP-1718-052876

DATE: 24.01.2018



OSCILLOGRAM NO. : 706/07



TC 2386580



Certificate No. : TC-5389

ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

(Accredited by the National Accreditation Board for Testing and Calibration Laboratories, Govt. of India)

ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, India.

EPABX : +91 (0265) 2642942, 2642964, 2642377, 3043128 / 29 / 30 / 31 / 33

Fax : +91 (0265) 2638382

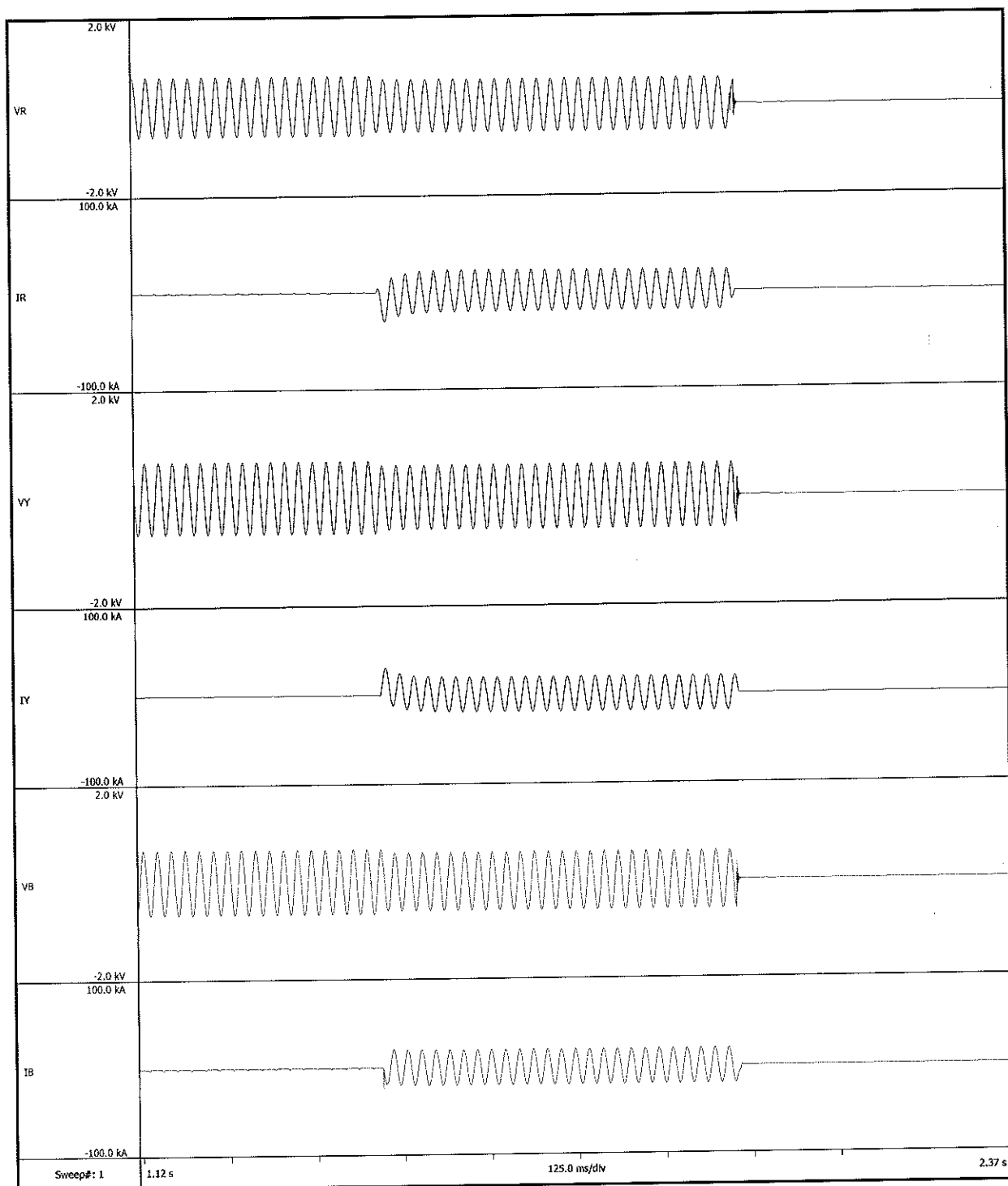
E-mail : erda@erda.org

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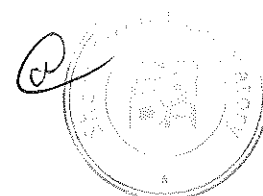
REPORT NO.: RP-1718-052876

DATE: 24.01.2018



OSCILLOGRAM NO. : 706/08

TC 2386581





Certificate No. : TC-5389

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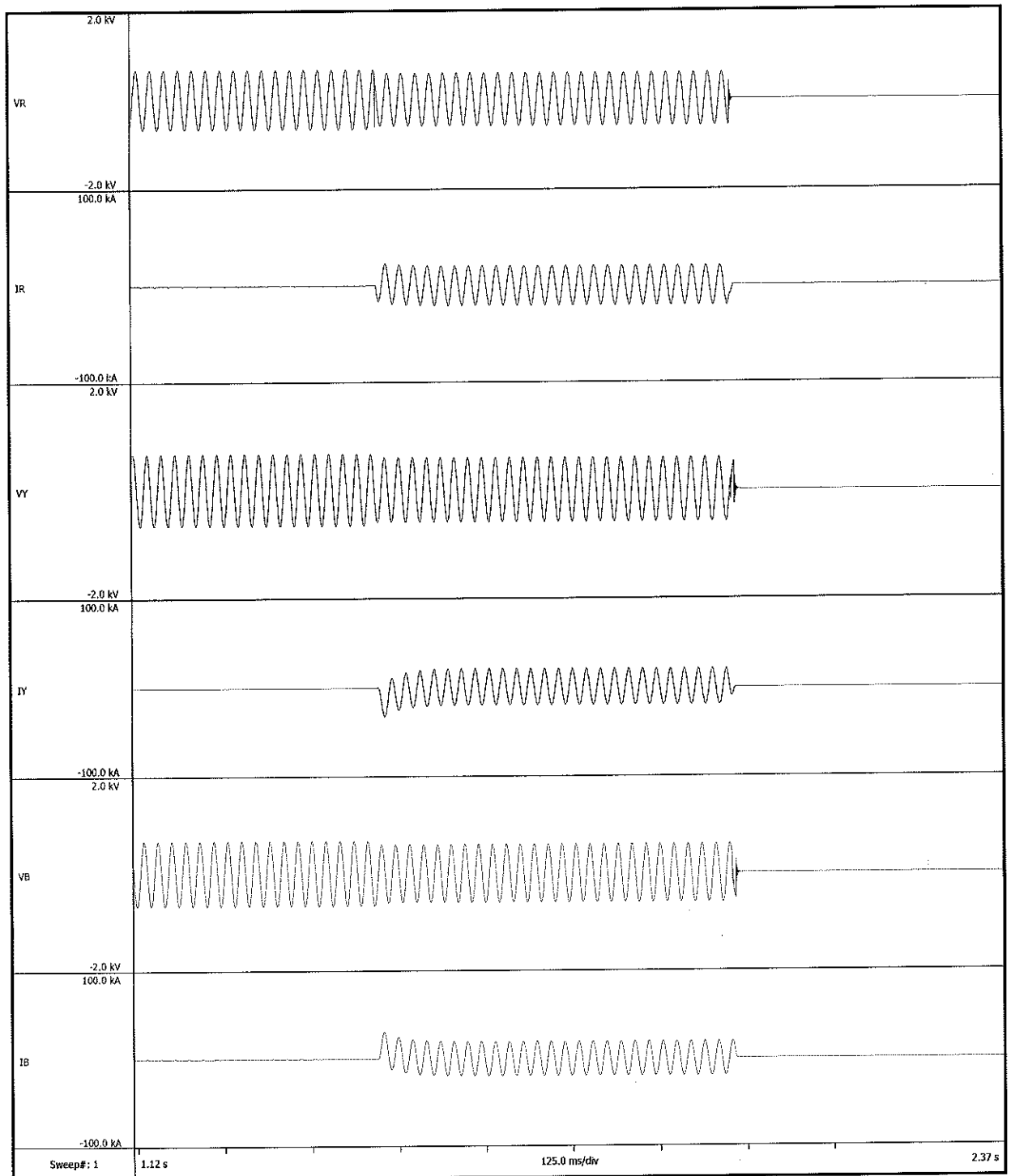
E-mail : erda@erda.org

Web : <http://www.erda.org>



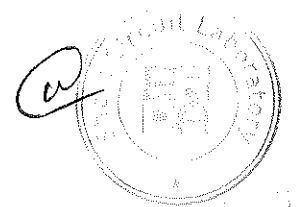
REPORT NO.: RP-1718-052876

DATE: 24.01.2018



OSCILLOGRAM NO. : 706/09

TC 2386582





Certificate No. : TC-5389

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Fax : +91 (0265) 2638382

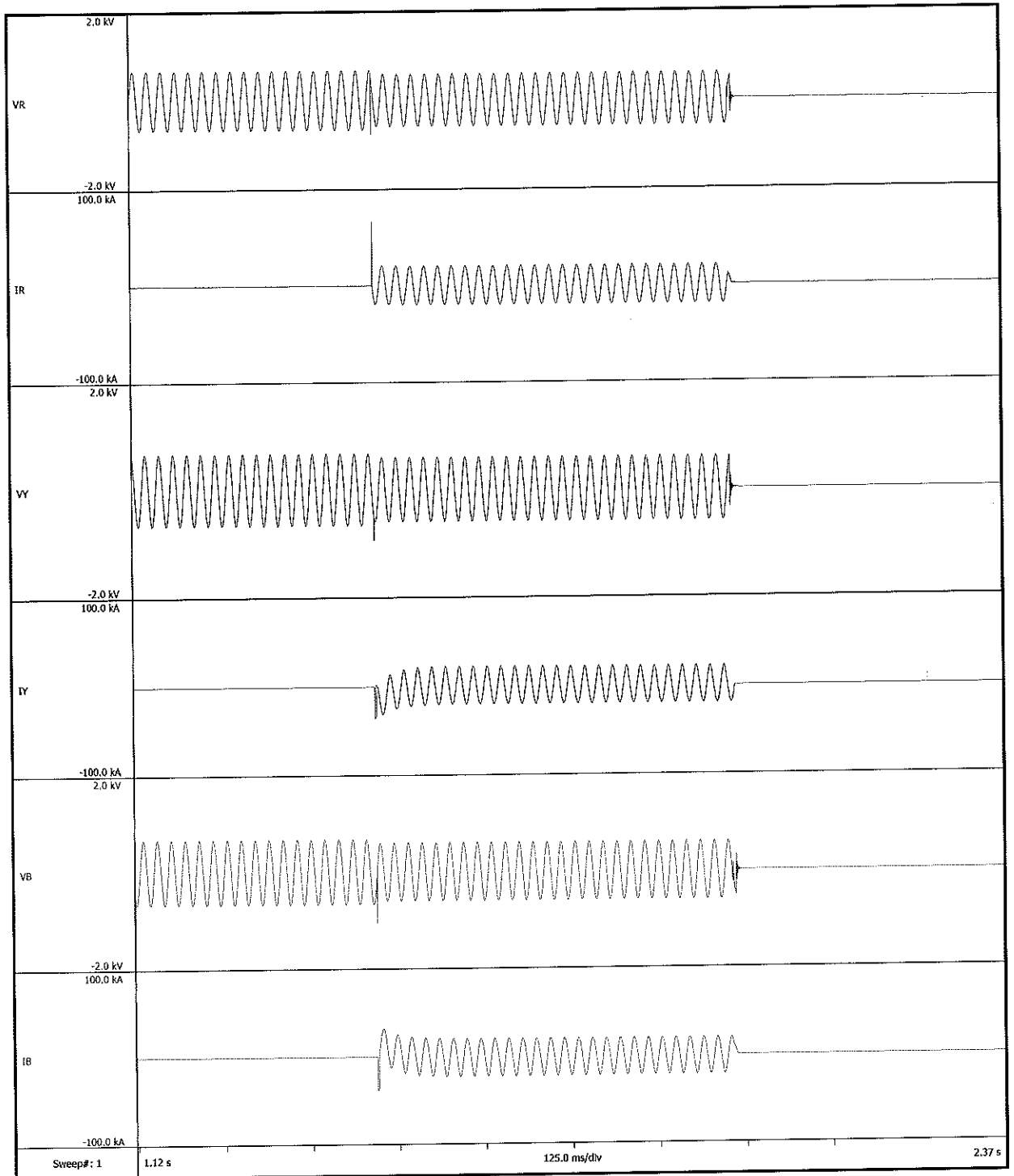
E-mail : erda@erda.org

Web : <http://www.erda.org>

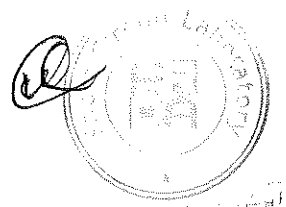


REPORT NO.: RP-1718-052876

DATE: 24.01.2018



OSCILLOGRAM NO. : 706/10



TC 2386584



Certificate No. : TC-5389

ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

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ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, India.

EPABX : +91 (0265) 2642942, 2642964, 2642377, 3043128 / 29 / 30 / 31 / 33

Fax : +91 (0265) 2638382

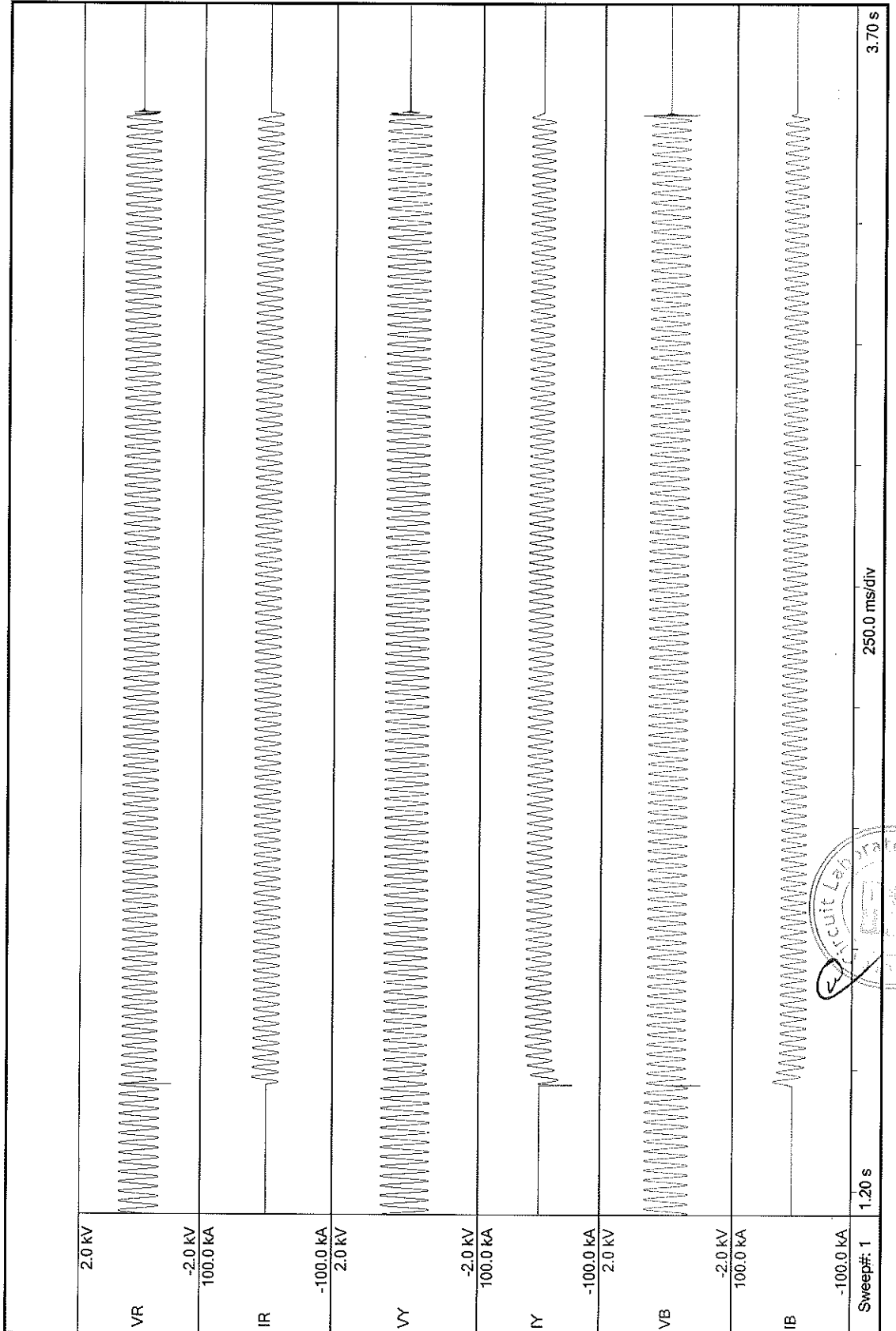
E-mail : erda@erda.org

Web : http://www.erda.org



REPORT NO.: RP-1718-052876

DATE: 24.01.2018



Oscillogram No.:706/11

TC 2386586



Certificate No. : TC-5389

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Fax : +91 (0265) 2638382

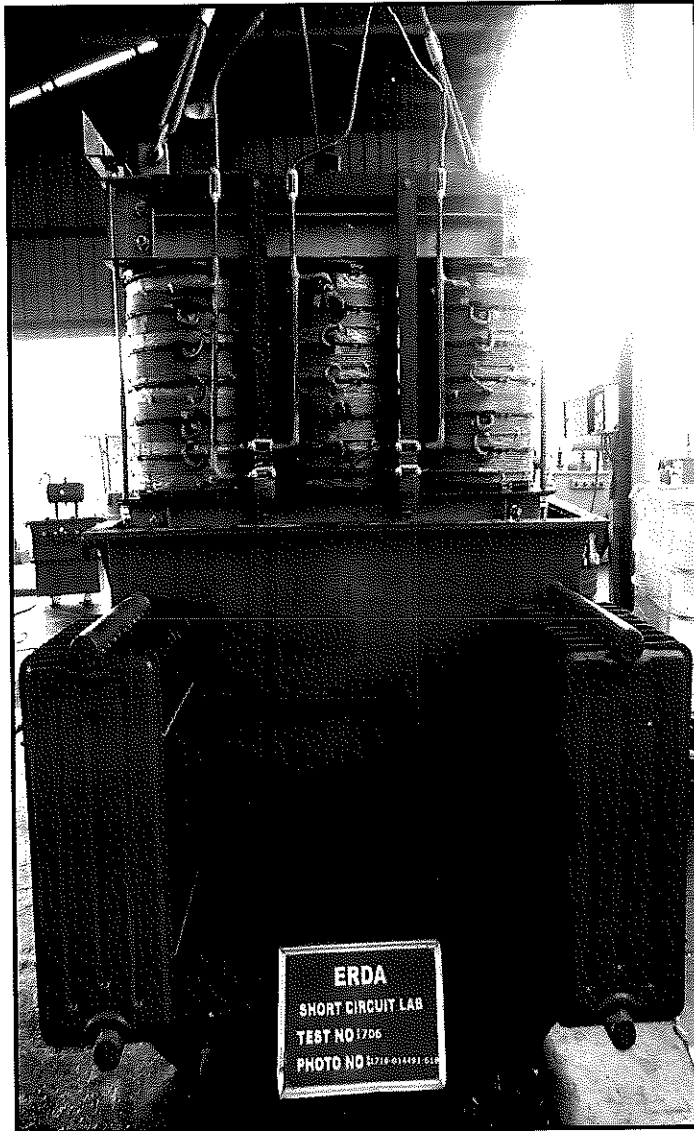
E-mail : erda@erda.org

Web : http://www.erda.org



REPORT NO.: RP-1718-052876

DATE: 24.01.2018



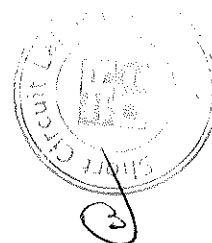
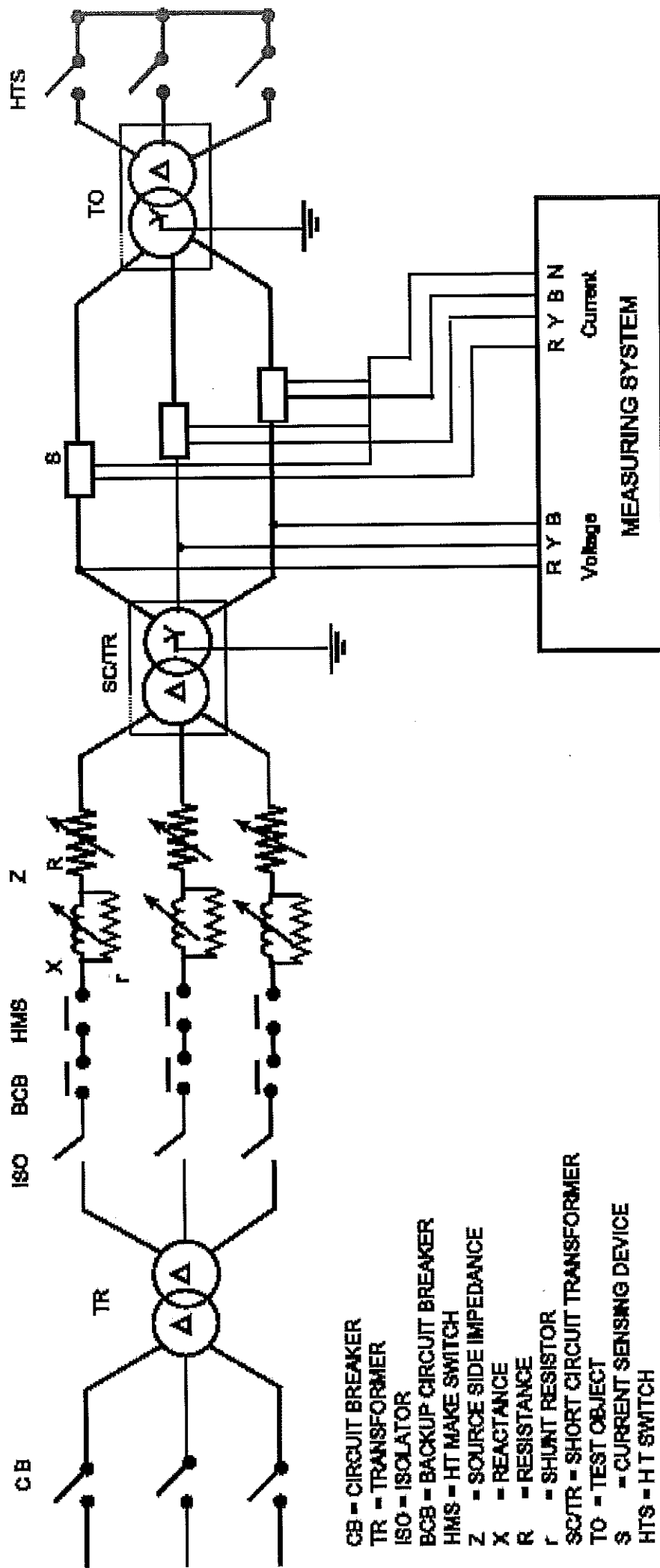
DISTRIBUTION TRANSFORMER			
RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.			IS 1170
Karola-Bhimel Road, Karola, Sanchole-343 041 Dist : Rajasthan INDIA			PART-I CML-8409070165
PHASE TRANSFORMER	ENERGY EFFICIENCY LEVEL	2	
STANDARD	IS-1170(PART-I)2014	MAX. TOTAL LOSSES	
KVA	500	AT 50% LOAD W	1510
VOLTS AT NO LOAD	HV 11000 LV 433	MAX. TOTAL LOSSES AT 100% LOAD W	4300
OIL	HV LI-MAG24 LV LI-TAG-3	TYPE OF COOLING	ONAN
AMPERES	HV 26.25 LV 666.7	TEMP RISE	OIL 40 °C WDG 45 °C
FREQUENCY	Hz 50	MASS OF OIL	Kg 400
VECTOR GROUP REF	Dyn11	TOTAL MASS	Kg 2330
IMPEDANCE VOLT %	4.5	VOLUME OF OIL LTRS	480
TAPPING	NA	MONTH & YEAR OF MFG.	2017
CUSTOMER ORDER NO.		SERIAL NO. R1P14-1170-1718-014491-618	
MADE IN INDIA			

TEST NO.: 706

PHOTO NO.: 1718-014491-618

TC 2424275



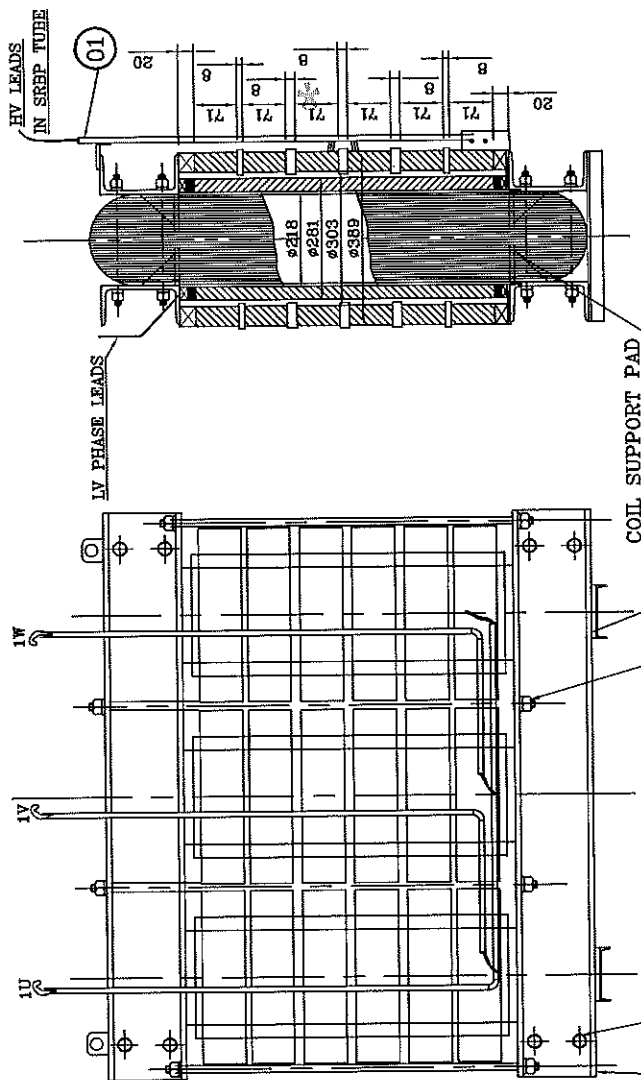


ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

SCHEMATIC CIRCUIT DIAGRAM

DRN H. A. S.	CKD BY M. B. M.	DATE 13/11/2008	DRAWING No. OLSC/DTC/03
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REPORT NO.: RP-1718-052876
DATE: 24.01.2018



SECTIONAL SIDE VIEW

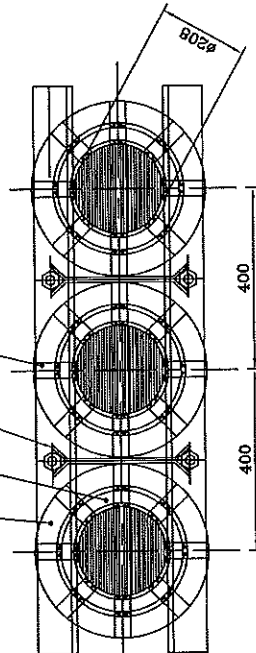
Test Report No. RP-1718-052876
 Date: 24.01.2018
 Product: Trans-former
 Verified By: [Signature]
 Verification of this drawing by ERDA is limited to relevant dimensional checks only. Verified dimensions are marked with '✓'.

Notes:-

1. All Dimensions are in mm
2. HV Conductor Bare Size : 3.5 mm Dia
3. LV Conductor Bare Size : 10/9X3.2mm x 12Nos.
4. Winding Material - Copper
5. Insulation of conductor-DPC
6. +/- 10% Tolerances on overall weights & dimensions

HV SIDE

LV SIDE



SECTIONAL PLAN

ITEM No.	N O M E N C L A T U R E	QTY.
9.	M.S. FOOT CHANNEL (100X50)MM	2
8.	M.S. TIE ROD Ø16 mm.	8
7.	P.B. SPACER BETWEEN SECTION	10
6.	P.B. SEPARATOR (1.5 mm X2)	2
5.	L.V. COIL/LIMB 1 No.	3
4.	H.V. COIL/LIMB 6 Nos.	18
3.	M.S. CORE BOLTS Ø16 mm.	8
2.	M.S. CORE CHANNEL (175 X 75)	4
1.	SRBP TUBES	3

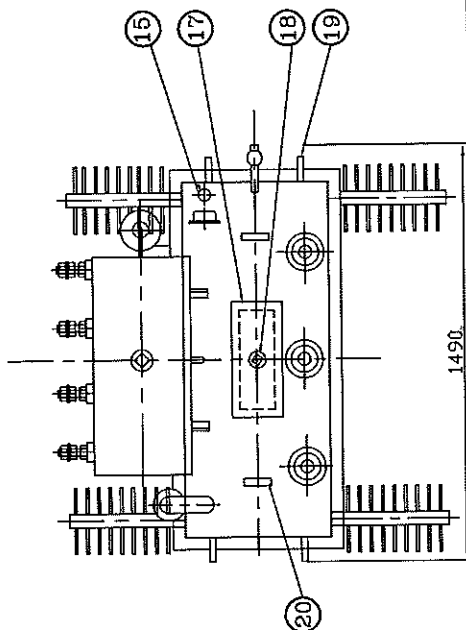
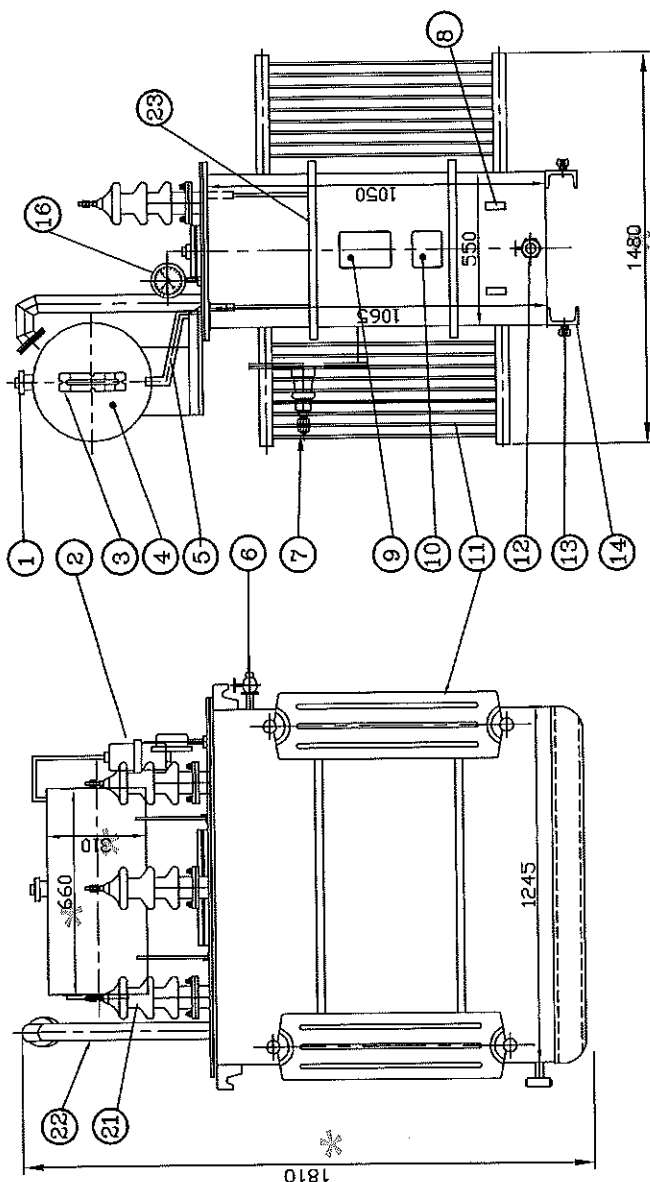
RAJASTHAN POWERGEN TRANSFORMER PVT. LTD
 KAROLA-BHINMAL ROAD, KAROLA, SANCHORE
 RAJASTHAN - 343041

Title:- CORE COIL ASSEMBLY DRAWING OF 500KVA/11/0.433KV
 COPPER WOUND ENERGY EFFICIENCY LEVEL-2 DISTRIBUTION TRANSFORMER

DRN.	---	CUSTOMER	---
APPD.	---	T. NO	RPTPL/17-18/500KVA/001
DATE	---	SCALE	N T S
		DRG. No.	RPTPL/500KVA/001

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED.
2. $\pm 10\%$ TOLERANCES ON WEIGHTS & DIMENSIONS



Test Report No. RP-1718-05 2876
 Date: 24.01.2018
 Product: Transformers
 Verified By: [Signature]
 Verification of this drawing by ERO is limited to relevant dimensional checks only.
 Verified dimensions are marked with 'V'.

SHEET THICKNESS		TANK DIMENSIONS	
TOP	5 mm	LENGTH	1245
BOTTOM	5 mm	BREADTH	550
SIDES		HEIGHT	1050/1065
MIN. ELECTRICAL CLEARANCE		WEIGHT DETAILS	
PHASE TO PHASE	4 mm	Core & Windings	1460 Kgs.
PHASE TO EARTH	5 mm	Tank & Fitting	470 Kgs.
HV	255	Weight of Oil	400 Kgs.
LV	75	Total Weight	2330 Kgs.
REV.No.	DATE	Quantity of Oil	480 Ltrs.
SIGN.		REMARKS	

ITEM	DESCRIPTIONS	QTY.
23.	STIFFNER-(50X50X6)MM ANGLE	2
22.	EXPLOSION VENT	1
21.	HV OUTDOOR BUSHINGS	3
20.	LIFTING LUGS FOR TANK COVER	2
19.	TRANSFORMER LIFTING LUGS	4
18.	AIR RELEASE PLUG	1
17.	INSPECTION HOLE	1
16.	4" DIAL TYPE THERMOMETER WITH MAX. DEMAND POINTER	1
15.	THERMOMETER POCKET	1
14.	UNDERBASE CHANNELS (125X65)MM	2
13.	EARTHING TERMINALS M-12X40L	2
12.	OIL DRAIN CUM SAMPLING VALVE	1
11.	COOLING PSR RADIATORS 700C/CX300W-9FINS	4
10.	IDENTITY PLATE	1
9.	NAME & RATING PLATE	1
8.	PULLING LUGS	4
7.	L.V. BUSHING	4
6.	OIL FILTER VALVE-20MM GUN METAL	1
5.	CONSERVATOR PIPE	1
4.	OIL CONSERVATOR WITH DRAIN PLUG	1
3.	OIL LEVEL GAUGE	1
2.	DEHYDRATING BREATHER	1
1.	OIL FILLING HOLE WITH CAP	1

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD
 KAROLA-BHINMAL ROAD, KAROLA, SANCHORE
 RAJASTHAN - 343041

Title:- OUTLINE GENERAL ARRANGEMENT DRAWING OF 500KVA
 11/0.433KV ENERGY EFFICIENCY LEVEL-2 TRANSFORMER

DRN.	CUSTOMER	---
CKD.	SPEC. No.	---
APPD.	SCALE	N T S
DATE	DRG. No.	RPTPL/500KVA/002

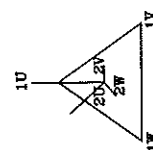
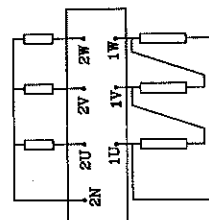
105
95

DISTRIBUTION TRANSFORMER

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD
KAROLA-BHINMAL ROAD, KAROLA, SANCHORE
RAJASTHAN (INDIA)
CMT-8400030106

3	PHASE TRANSFORMER	ENERGY LEVEL	2
STANDARD	500KVA	MAX TOTAL LOSS W	1510
		AT 50% LOAD	W
		MAX TOTAL LOSS W	4300
		AT 100% LOAD	
VOLTS AT	HV 11000	TYPE OF COOLING	ONAN
NO LOAD	LV 433	TEMP RISE	40° C
		W.DG.	45° C
BIL	HV 1105/AC28	MASS OF OIL(KG)	400
	LV 11-AC3		
AMPERES	HV 26.23	TOTAL MASS (KG)	2330
	LV 666.7		
FREQUENCY HZ	50	VOLUME OF OIL LITRES	480
VECTOR GROUP	Dyn11	MONTH & YEAR OF MFG	2017
IMPEDANCE VOLT %	4.5	S.N.O	
TAPPING NA			
CUSTOMER			
ORDER NO.			

MADE IN INDIA



MADE IN INDIA



Test Report No. RA-1718-052876
Date: 24.01.2018
Product: Transformer
Verified By: [Signature]
Verification of this drawing by ERDA is limited to relevant dimensional checks only.
Verified dimensions are marked with '✓'.

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD
KAROLA-BHINMAL ROAD, KAROLA, SANCHORE
RAJASTHAN - 343041

**TITLE: - NAME PLATE DRAWING OF 500KVA, 11/0.433KV
COPPER WOUND ENERGY EFFICIENCY LEVEL-2 TRANSFORMER**

CUSTOMER

T.S.No.

RPTPL/17-18/500KVA/001

SCALE

N T S

DRG. No.

RPTPL/500KVA/003