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Certificate No. : TC-5389

TEST REPORT

ULR NO.: TC538919000014147F

NAME & ADDRESS OF CUSTOMER **RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.** Khasra No. 911-914, Karola-Bhinmal Road, Karola, Sanchore, Rajasthan-343041 (India)	**REPORT NO.:** RP-1920-004071 **DATE:** 30.04.2019 **CUSTOMER REF. No.:** Nil — **DATED:** 03.04.2019 **DATE OF SAMPLE RECEIPT:** 20.03.2019 **DATE OF TESTING:** 11.04.2019 to 25.04.2019
SAMPLE DESCRIPTION **25 kVA Distribution Transformer** 11000/433 Volts, 1.31/33.33 Amp., Oil filled, Vector Group: Dyn-11, **ENERGY EFFICIENCY LEVEL:** 2 Further details as per sheet No. 3 of 9.	**SAMPLE IDENTIFICATION** **ERDA SAMPLE CODE NO.:** ERDA-00307717 **SERIAL NO.:** RPTPL-001 **DRAWING NO.:** RPTPL-25KVA-RP-01/02-2019 RPTPL-25KVA-RP-02/02-2019 RPTPL-GA-25KVA-02-2019 RPTPL-TD-25KVA-03-2019 RPTPL-IA-25KVA-04-2019 **YEAR OF MFG.:** 2019
TEST DETAILS Short-circuit withstand test [Cl. No. (17 & 21.3 c)]	**TEST SPECIFICATIONS** As per customer's requirement, Test procedure followed as per IS 1180 (Part 1): 2014 [Amendment No. 1 & 2]

ENCLOSURES:

Number of oscillograms	: Eleven
Number of photograph	: One
Number of test circuit diagram	: One
Number of drawings	: Five

REMARKS: The sample **conforms** to the requirements of standard for short-circuit withstand test as specified by customer.

PREPARED BY | **CHECKED BY** | **K. B. PATEL**
APPROVED BY

NOTE:
1. This report relates only to the particular sample received for testing in good condition 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 for by customer have been carried out.
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2.	Routine test results before short circuit	Sheet No. 4 of 9 to 5 of 9
3.	Short-circuit withstand test	Sheet No. 6 of 9 to 7 of 9
4.	Routine test results after short circuit	Sheet No. 8 of 9 to 9 of 9
5.	Oscillogram No.	0050/01 to 0050/11
6.	Photograph No.	1920-000295/0070
7.	Test circuit diagram No.	OLSC/DTC/01
8.	Drawing No.	RPTPL-25KVA-RP-01/02-2019 RPTPL-25KVA-RP-02/02-2019 RPTPL-GA-25KVA-02-2019 RPTPL-TD-25KVA-03-2019 RPTPL-IA-25KVA-04-2019

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TECHNICAL SPECIFICATIONS OF TEST OBJECT ASSIGNED BY CUSTOMER

1.	Name of manufacturer	: **RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.**
2.	Equipment	: **25 kVA Distribution Transformer**
3.	Standard No.	: As per customer's requirement, Test procedure followed as per [Cl. No. (17 & 21.3 c)] of IS 1180 (Part 1): 2014 [Amendment No. 1 & 2]
4.	Serial No.	: RPTPL-001
5.	Energy efficiency level	: 2
6.	Type	: Outdoor, Oil Cooled, Aluminium wound, Non sealed type
7.	kVA rating	: 25
8.	Rated voltage H.V. (Volts)	: 11000
	L.V. (Volts)	: 433
9.	Rated current H.V. (Amp.)	: 1.31
	L.V. (Amp.)	: 33.33
10.	Number of phases	: 3
11.	Connection H.V./L.V.	: Delta/Star
12.	Frequency (Hz.)	: 50
13.	Type of cooling	: ONAN
14.	Temperature rise of oil/winding	: 35°C/40°C
15.	Percentage Impedance	: 4.5%
16.	Primary winding conductor	: SE Aluminium wire, bare dia. 0.935mm
17.	Secondary winding conductor	: DPC Aluminium strip, bare size (3.7mm x 8.5mm)
18.	Quantity of oil (Litre)	: 80
19.	Weight of oil (kg.)	: 67
20.	Total weight (kg.)	: 300
21.	Vector group	: Dyn-11
22.	Year of manufacture	: 2019
23.	Insulation level H.V.	: 28 kVrms
24.	Insulation level L.V.	: 03 kVrms
25.	Total losses at 75°C (Watts)	: 190 Max. (at 50 % load)
26.	Total losses at 75°C (Watts)	: 635 Max. (at 100 % load)

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ROUTINE TEST RESULTS BEFORE SHORT CIRCUIT

a) MEASUREMENT OF WINDING RESISTANCE

Measurement at oil temperature: 36.9°C					
LV Winding resistance (mΩ)			HV Winding Resistance (Ω)		
u – v	v – w	w – u	U – V	V – W	W – U
99.19	98.91	99.19	99.59	99.15	99.21

b) MEASUREMENT OF VOLTAGE RATIO AND CHECK OF PHASE DISPLACEMENT

Vector group: Dyn-11 was verified.

Rated turns Ratio	Measured turns ratio between Terminals					
	U-V/u-n	Difference %	V-W/v-n	Difference %	W-U/w-n	Difference %
44.001	44.036	0.080	44.048	0.107	44.036	0.080

c) MEASUREMENT OF SHORT-CIRCUIT IMPEDANCE AND LOAD LOSS **(at 100 % load)**

Oil temp.: 37.2°C

Test current (Amp.) Iavg	Impedance voltage (V) Vavg.	Frequency (Hz.)	Load loss measured (Watts)	Impedance Voltage (%Z) at 50 Hz.	Load loss computed at 75°C (Watts)	%Z at 75°C
1.310	448.292	50.027	428.478	4.073	488	4.179

d) MEASUREMENT OF LOAD LOSS **(at 50 % load)**

Oil temp.: 37.2°C

Test current (Amp.) Iavg.	Impedance voltage (V) Vavg.	Frequency (Hz.)	Load loss measured (Watts)	Load loss computed at 75°C (Watts)
0.655	224.018	49.978	107.263	122

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e) MEASUREMENT OF NO-LOAD LOSS AND CURRENT

Oil temp.: 37.2°C

Applied Voltage (V) Vavg.	Current (Amp.) Iavg.	Frequency (Hz.)	Losses Measured (Watts)
433.001	0.191	50.005	58

- Total losses at 75°C: 180 Watts (at 50 % load)
- Total losses at 75°C: 546 Watts (at 100% load)

f) MEASUREMENT OF INSULATION RESISTANCE

Oil temp.: 36.9°C

Measured Between	DC Test Voltage (V)	IR value (MΩ)
HV to LV winding	2500	> 2000
HV winding to LV + EARTH	2500	> 2000
LV winding to HV + EARTH	500	> 2000

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

h) SEPARATE-SOURCE VOLTAGE 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

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SHORT-CIRCUIT WITHSTAND TEST:

The verification of the short-circuit withstand test was performed on the high voltage winding connected to three phase-balanced source and low voltage winding short circuited through current measuring instruments. Test conducted with pre set short circuit as per schematic circuit diagram No.: OLSC/DTC/01.

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

Supply Frequency: 50 Hz.

Test No.	Oscillogram No.	Applied voltage (kVrms)	Short circuit current on LV (A)			Duration (sec.)	Remarks
			Peak	RMS	Avg.		
1.	0050/01	-	- 1130 -	622 627 620	623	0.1	Calibration shot
2.	0050/02	11	- 1401 -	782 783 773	779	0.5	No Abnormality
3.	0050/03	11	- 1404 -	781 782 773	779	0.5	No Abnormality
4.	0050/04	11	- 1399 -	782 782 772	779	0.5	No Abnormality
5.	0050/05	11	- - 1374	780 782 773	778	0.5	No Abnormality
6.	0050/06	11	- - 1380	780 783 773	779	0.5	No Abnormality
7.	0050/07	11	- - 1371	781 782 772	778	0.5	No Abnormality
8.	0050/08	11	1371 - -	778 785 774	779	0.5	No Abnormality
9.	0050/09	11	1318 - -	780 788 778	782	0.5	No Abnormality
10.	0050/10	11	1366 - -	783 786 776	782	0.5	No Abnormality
11.	0050/11	11	- 1403 -	778 780 771	776	2.0	Thermal Shot* No Abnormality

*As per customer's requirement

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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 percentage reactance was measured.

Sr. No.	Measurement performed		Measured value of % reactance at 50 Hz.			%Change in % reactance		
			U	V	W	U	V	W
1.	Before test		3.73	3.71	3.72	-	-	-
2.	After the test no.	2.	3.73	3.71	3.72	0.00	0.00	0.00
3.	After the test no.	3.	3.73	3.71	3.72	0.00	0.00	0.00
4.	After the test no.	4.	3.73	3.71	3.72	0.00	0.00	0.00
5.	After the test no.	5.	3.73	3.71	3.72	0.00	0.00	0.00
6.	After the test no.	6.	3.73	3.71	3.72	0.00	0.00	0.00
7.	After the test no.	7.	3.73	3.71	3.72	0.00	0.00	0.00
8.	After the test no.	8.	3.73	3.71	3.72	0.00	0.00	0.00
9.	After the test no.	9.	3.73	3.71	3.72	0.00	0.00	0.00
10.	After the test no.	10.	3.73	3.71	3.72	0.00	0.00	0.00
11.	After the test no.	11.	3.73	3.71	3.72	0.00	0.00	0.00

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ROUTINE TEST RESULTS AFTER SHORT CIRCUIT

a) MEASUREMENT OF WINDING RESISTANCE

Measurement at oil temperature: 34.5°C					
LV Winding resistance (mΩ)			HV Winding Resistance (Ω)		
u – v	v – w	w – u	U – V	V – W	W – U
99.36	99.06	99.33	99.43	99.01	99.06

b) MEASUREMENT OF VOLTAGE RATIO AND CHECK OF PHASE DISPLACEMENT

Vector group: Dyn-11 was verified.

Rated turns Ratio	Measured turns ratio between Terminals					
	U-V/u-n	Difference %	V-W/v-n	Difference %	W-U/w-n	Difference %
44.001	44.036	0.080	44.035	0.077	44.036	0.080

c) MEASUREMENT OF SHORT-CIRCUIT IMPEDANCE AND LOAD LOSS **(at 100 % load)**

Oil temp.: 34.3°C

Test current (Amp.) Iavg	Impedance voltage (V) Vavg.	Frequency (Hz.)	Load loss measured (Watts)	Impedance Voltage (%Z) at 50 Hz.	Load loss computed at 75°C (Watts)	%Z at 75°C
1.310	447.860	50.009	426.634	4.070	492	4.186

d) MEASUREMENT OF LOAD LOSS **(at 50 % load)**

Oil temp.: 34.3°C

Test current (Amp.) Iavg.	Impedance voltage (V) Vavg.	Frequency (Hz.)	Load loss measured (Watts)	Load loss computed at 75°C (Watts)
0.654	223.547	50.033	106.284	123

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e) MEASUREMENT OF NO-LOAD LOSS AND CURRENT

Oil temp.: 34.3°C

Applied Voltage (V) Vavg.	Current (Amp.) Iavg.	Frequency (Hz.)	Losses Measured (Watts)
433.312	0.192	50.007	58

- Total losses at 75°C: 181 Watts (at 50 % load)
- Total losses at 75°C: 550 Watts (at 100% load)

f) MEASUREMENT OF INSULATION RESISTANCE

Oil temp.: 34.5°C

Measured Between	DC Test Voltage (V)	IR value (MΩ)
HV to LV winding	2500	> 2000
HV winding to LV + EARTH	2500	> 2000
LV winding to HV + EARTH	500	> 2000

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

h) SEPARATE-SOURCE VOLTAGE 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

Observation after test: The transformer was untanked and inspected.
1) Condition of conductor, core and clamping:
- No visible damage, deformation or displacement.
2) Condition of oil : Clear
3) Condition of spacers : Intact

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

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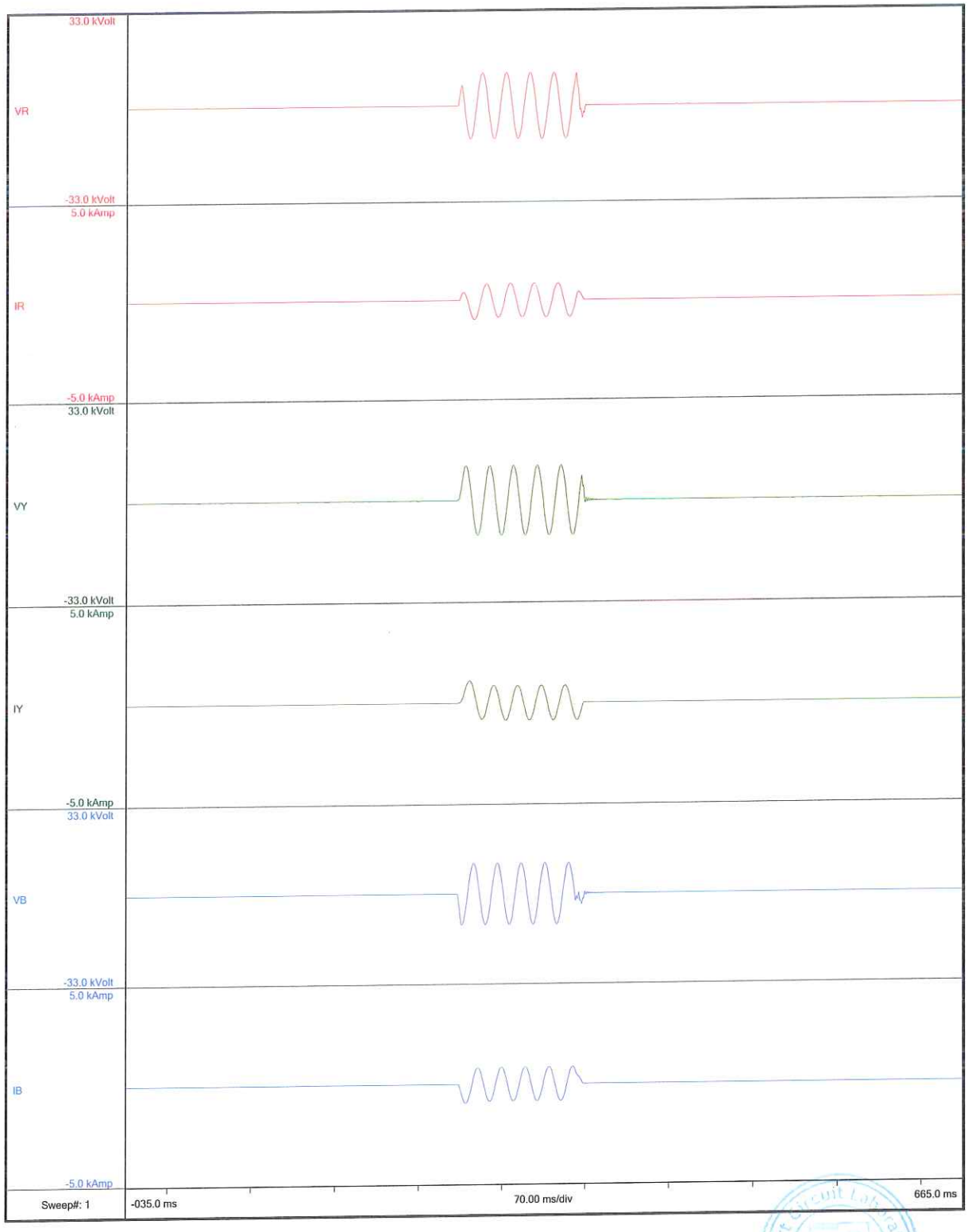

OSCILLOGRAM NO. : 0050/01

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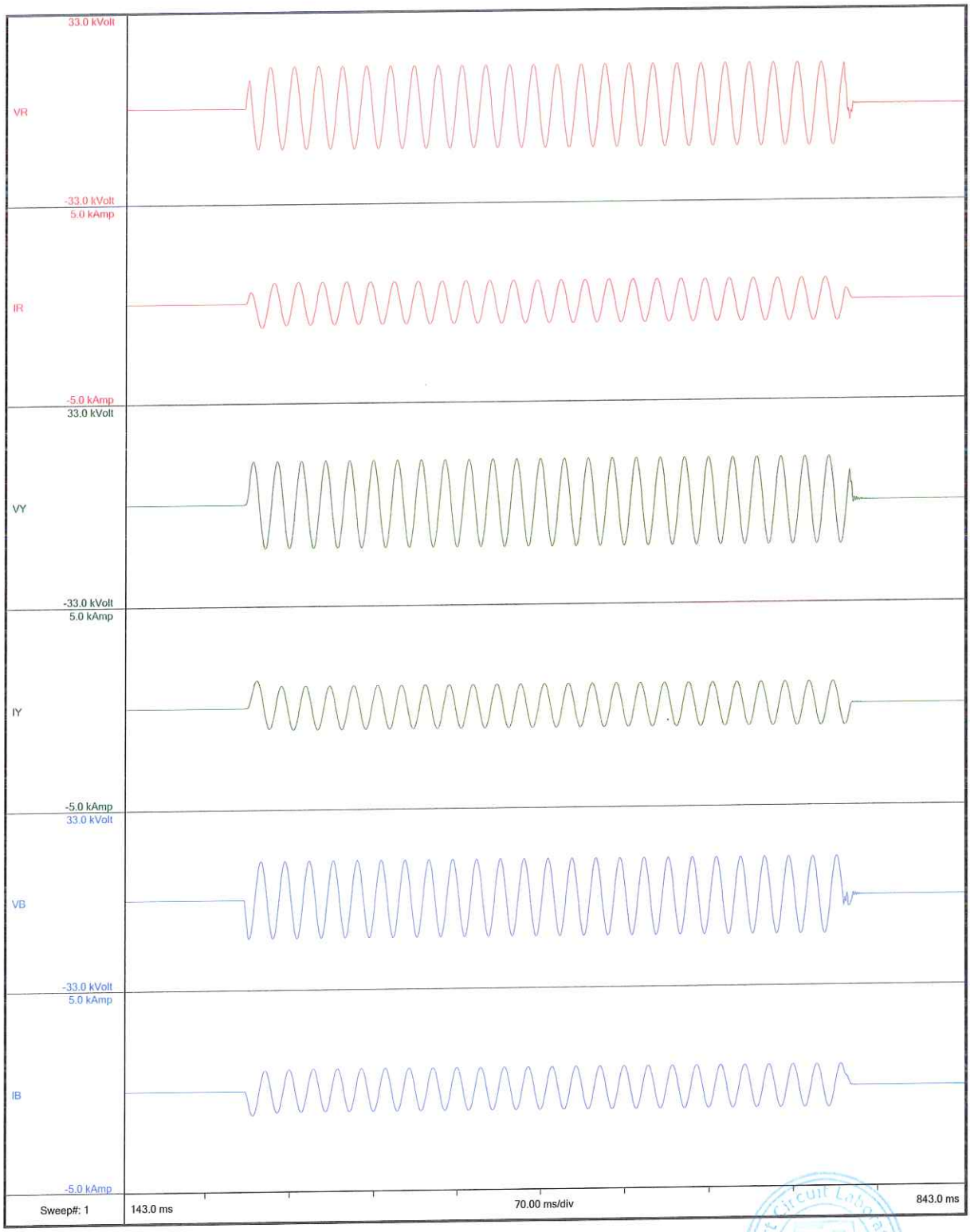

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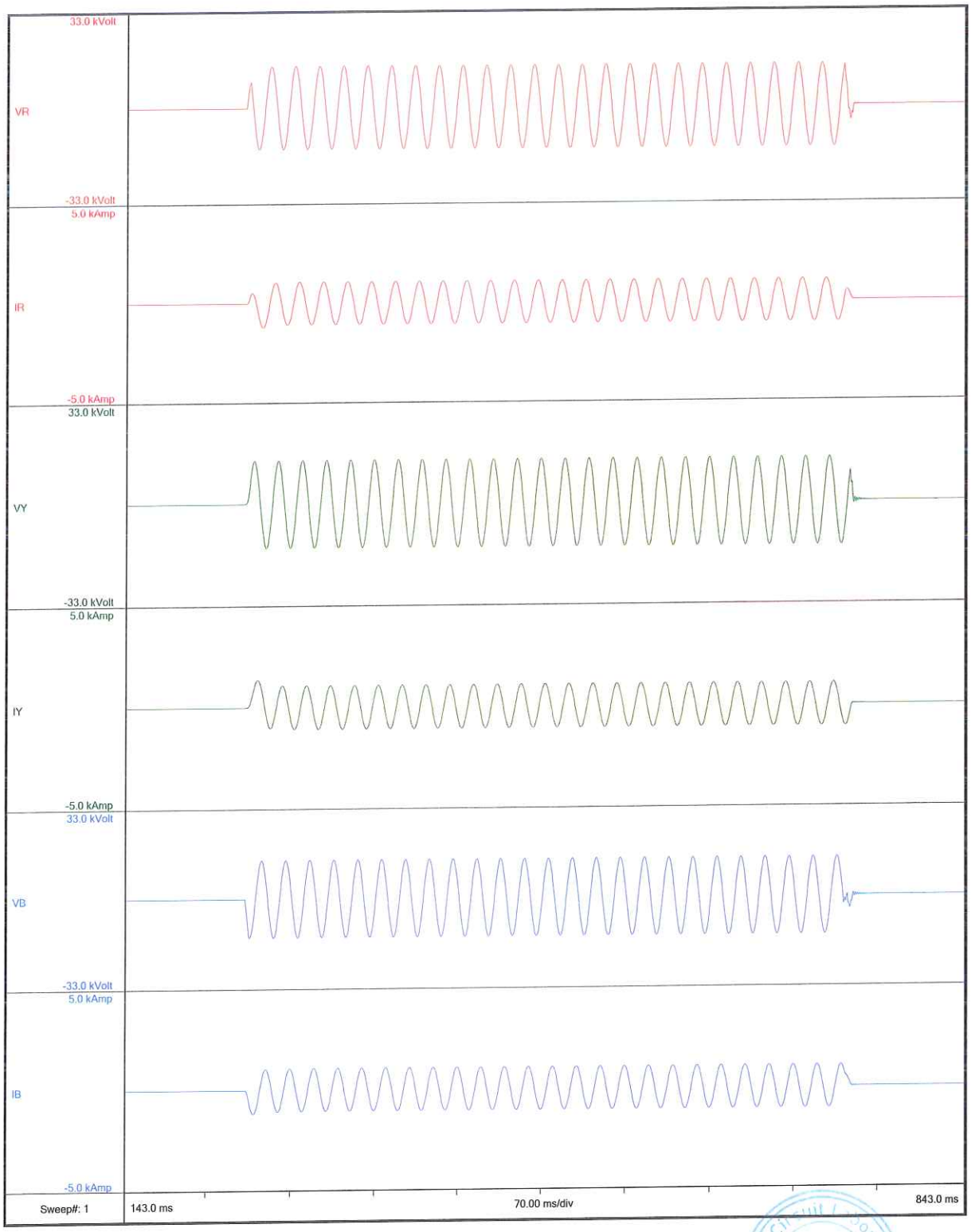

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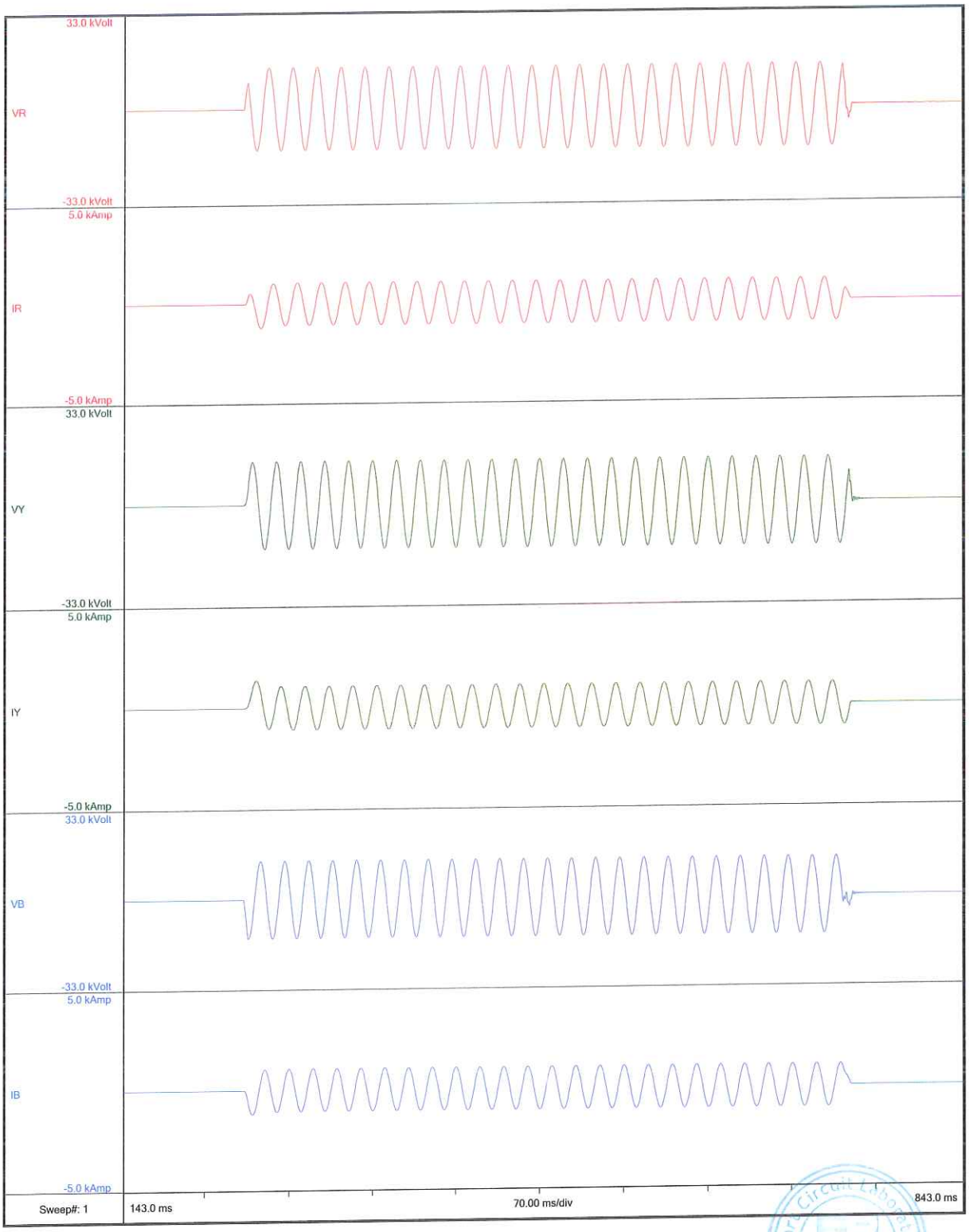

OSCILLOGRAM NO. : 0050/04

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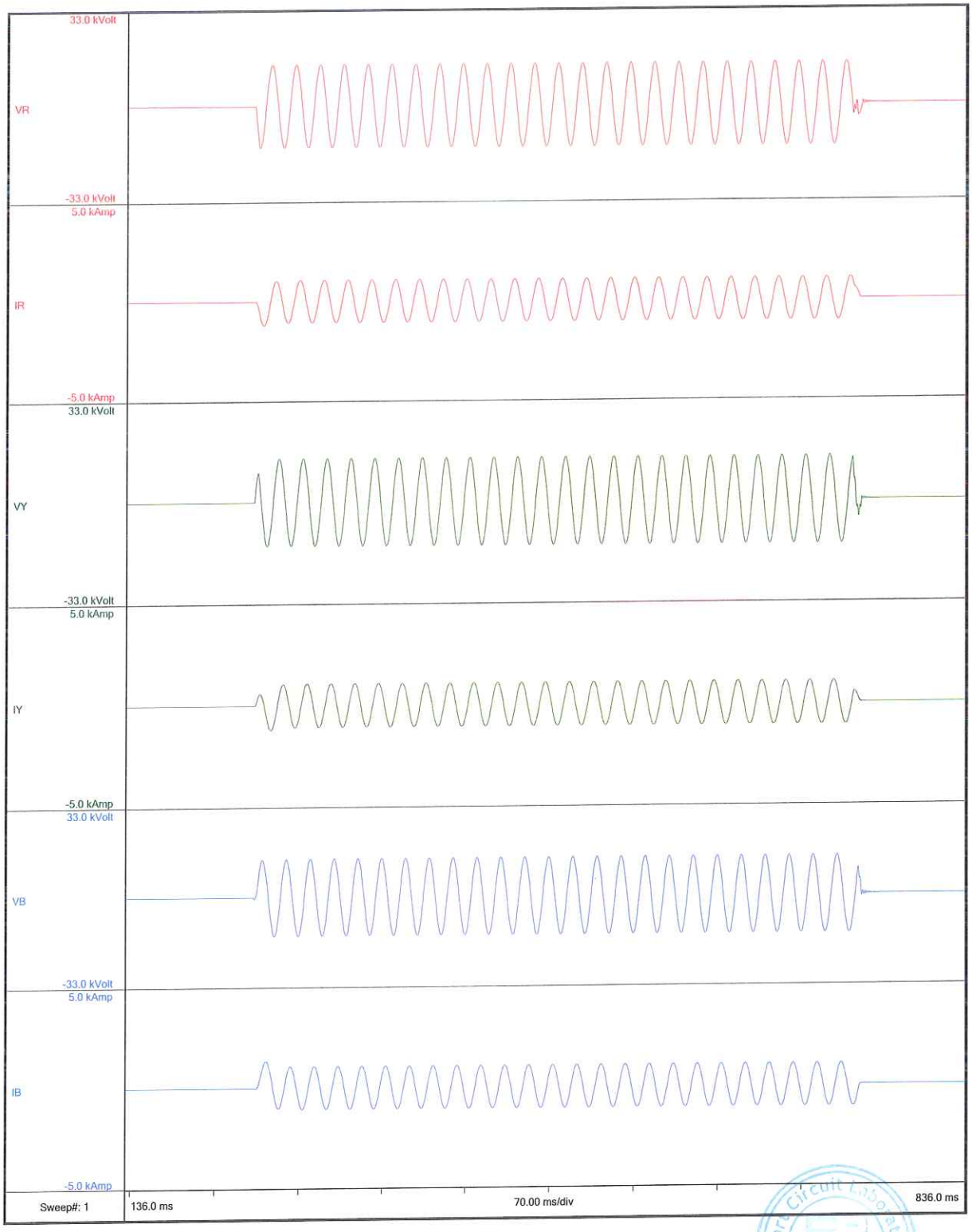

OSCILLOGRAM NO. : 0050/05

TC 27716285

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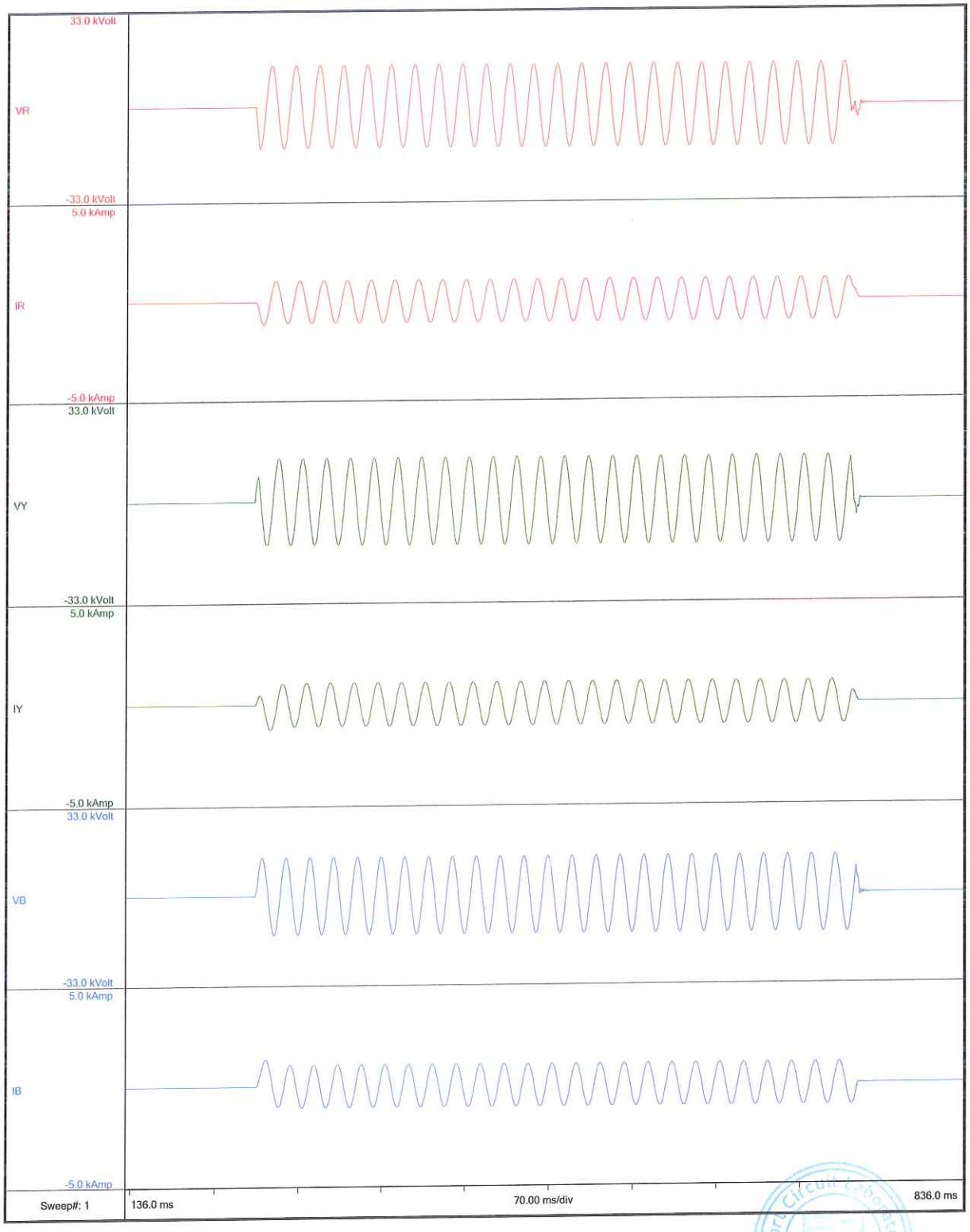

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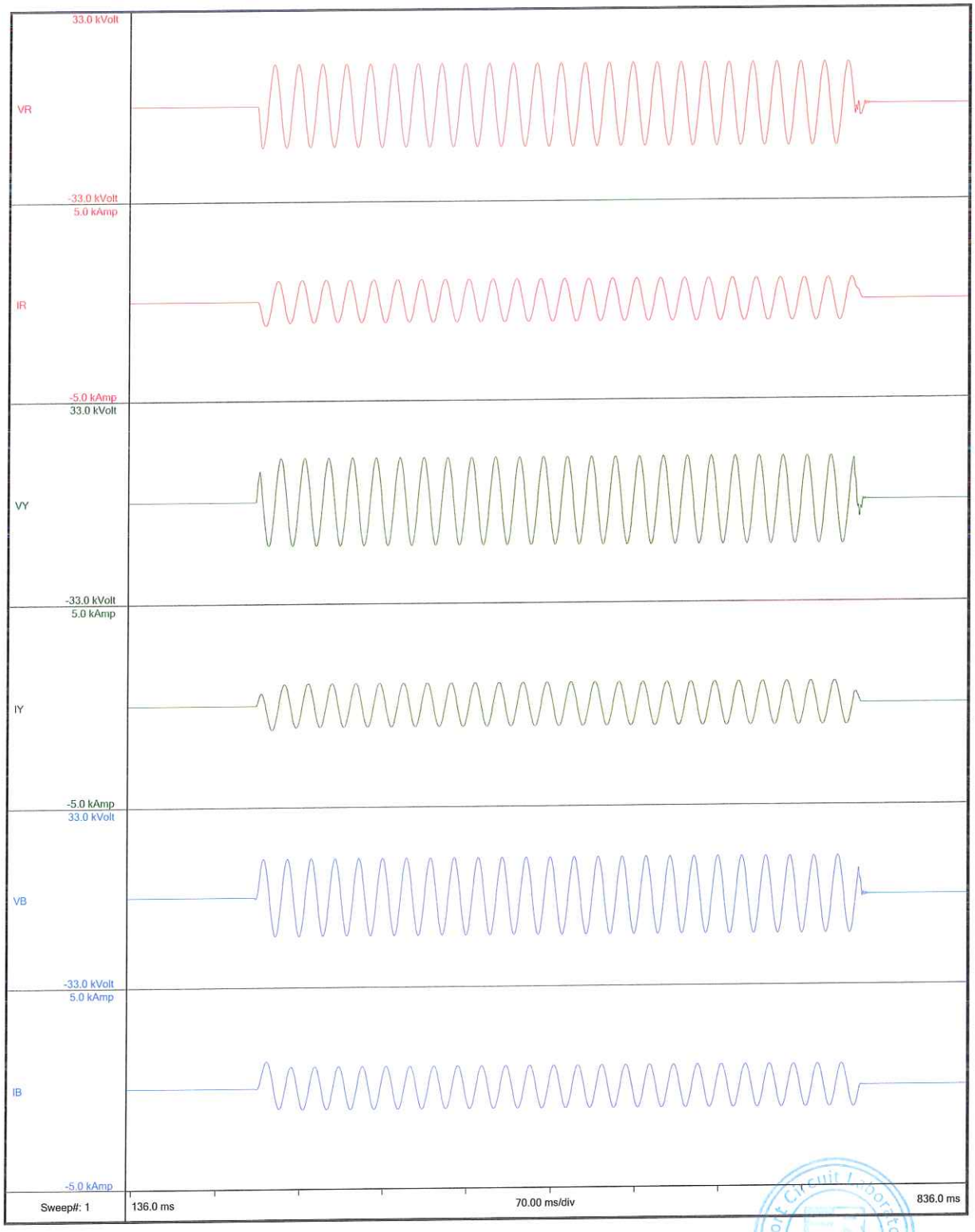

OSCILLOGRAM NO. : 0050/07

TC 27716287

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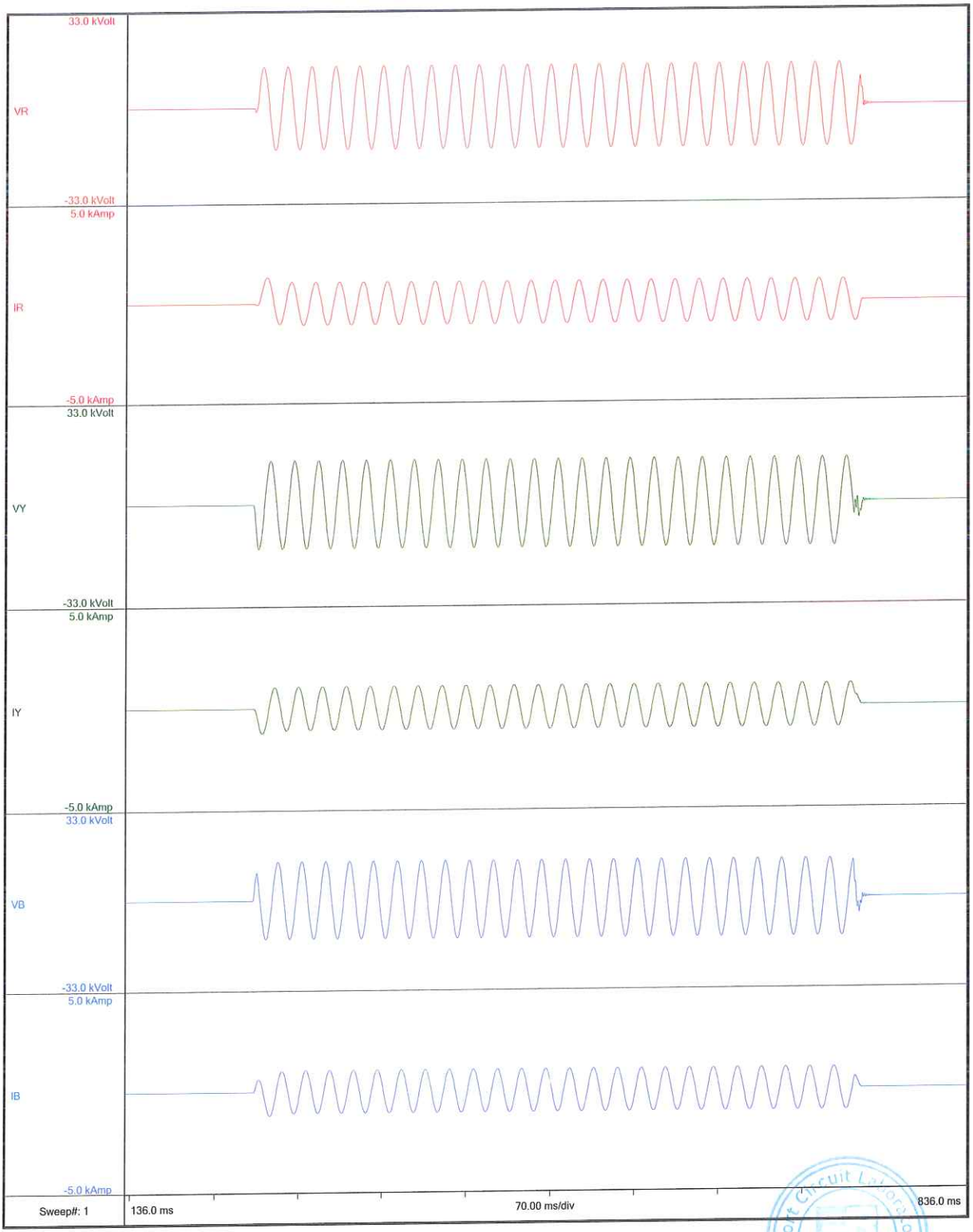
Fax : +91 (0265) 2638382
E-mail : erda@erda.org
Web : http://www.erda.org

Certificate No. : TC-5389

ULR NO.: TC538919000014147F
REPORT NO.: RP-1920-004071

DATE: 30.04.2019



OSCILLOGRAM NO. : 0050/08

TC 27162288

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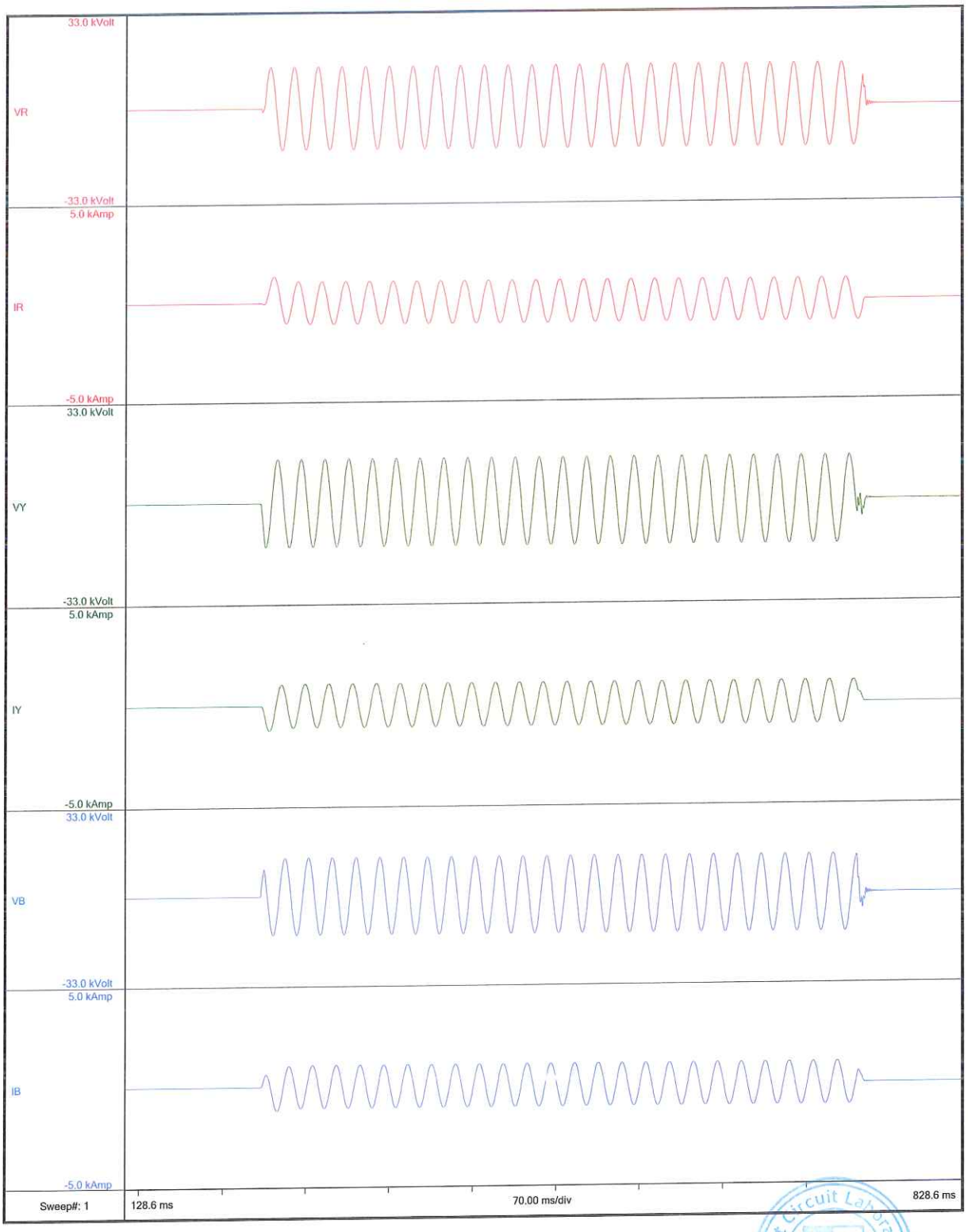
Certificate No. : TC-5389

ULR NO.: TC538919000014147F
REPORT NO.: RP-1920-004071 **DATE:** 30.04.2019



OSCILLOGRAM NO. : 0050/09

TC 2716289

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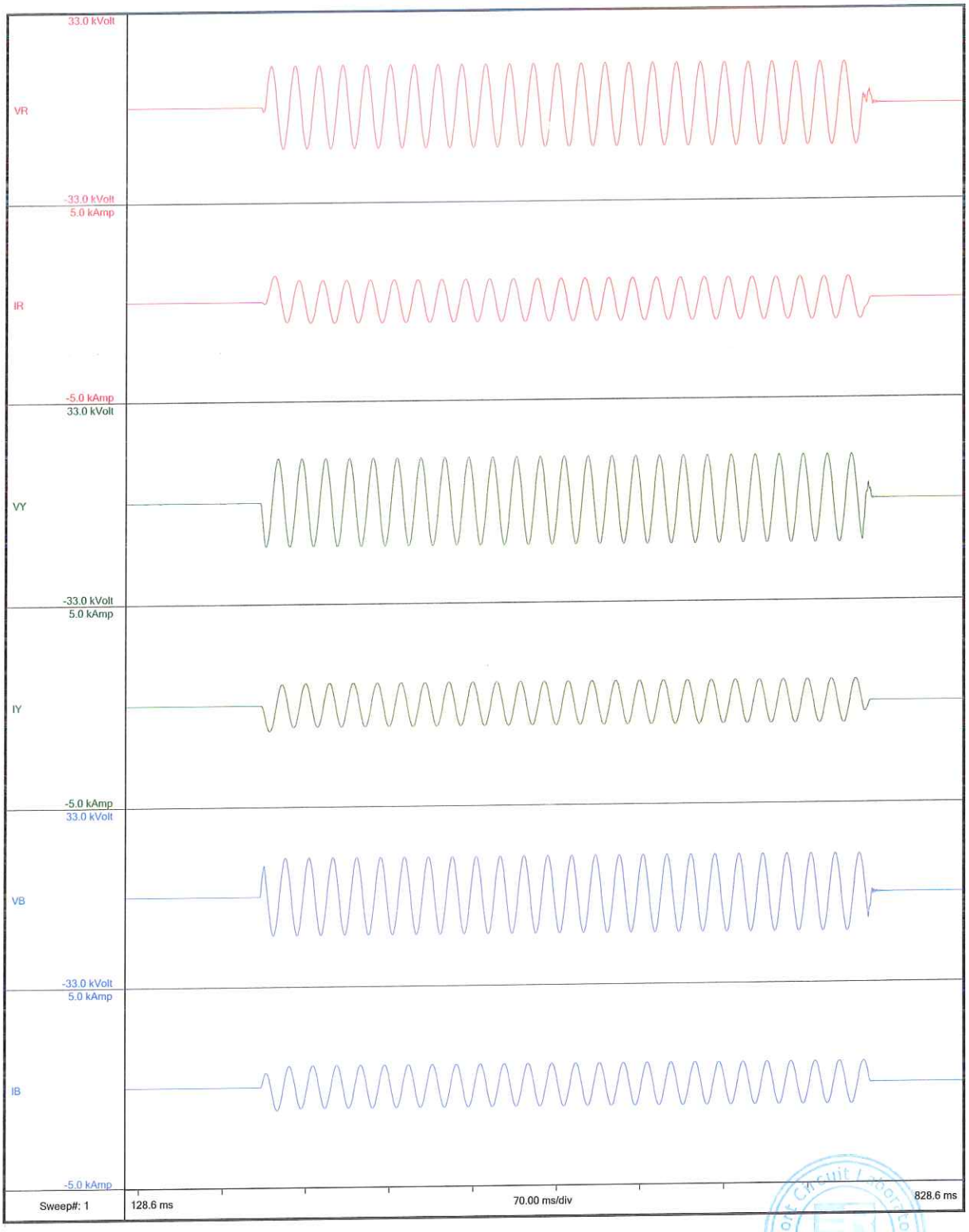
Certificate No. : TC-5389 Web : http://www.erda.org

ULR NO.: TC538919000014147F
REPORT NO.: RP-1920-004071 **DATE:** 30.04.2019



OSCILLOGRAM NO. : 0050/10

TC 2716290

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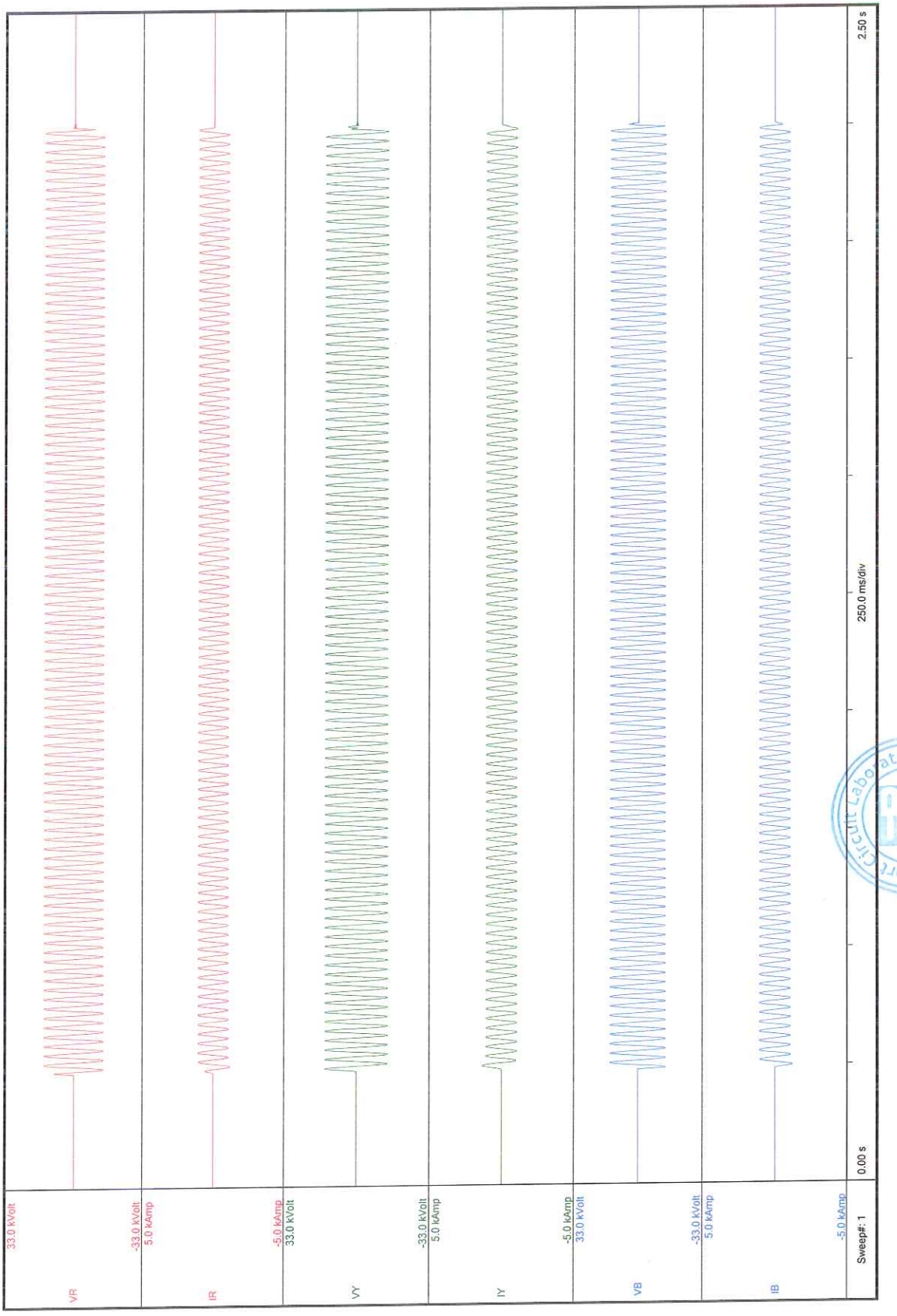
Certificate No. : TC-5389

ULR NO.: TC538919000014147F
REPORT NO.: RP-1920-004071

DATE: 30.04.2019



OSCILLOGRAM NO.: 0050/11

TC 2716291

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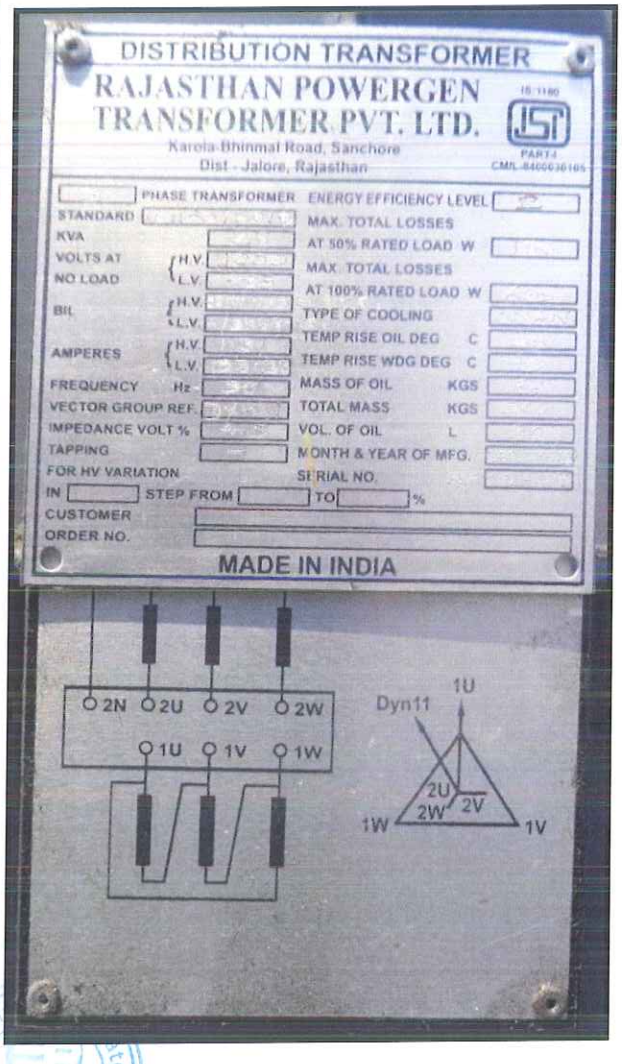
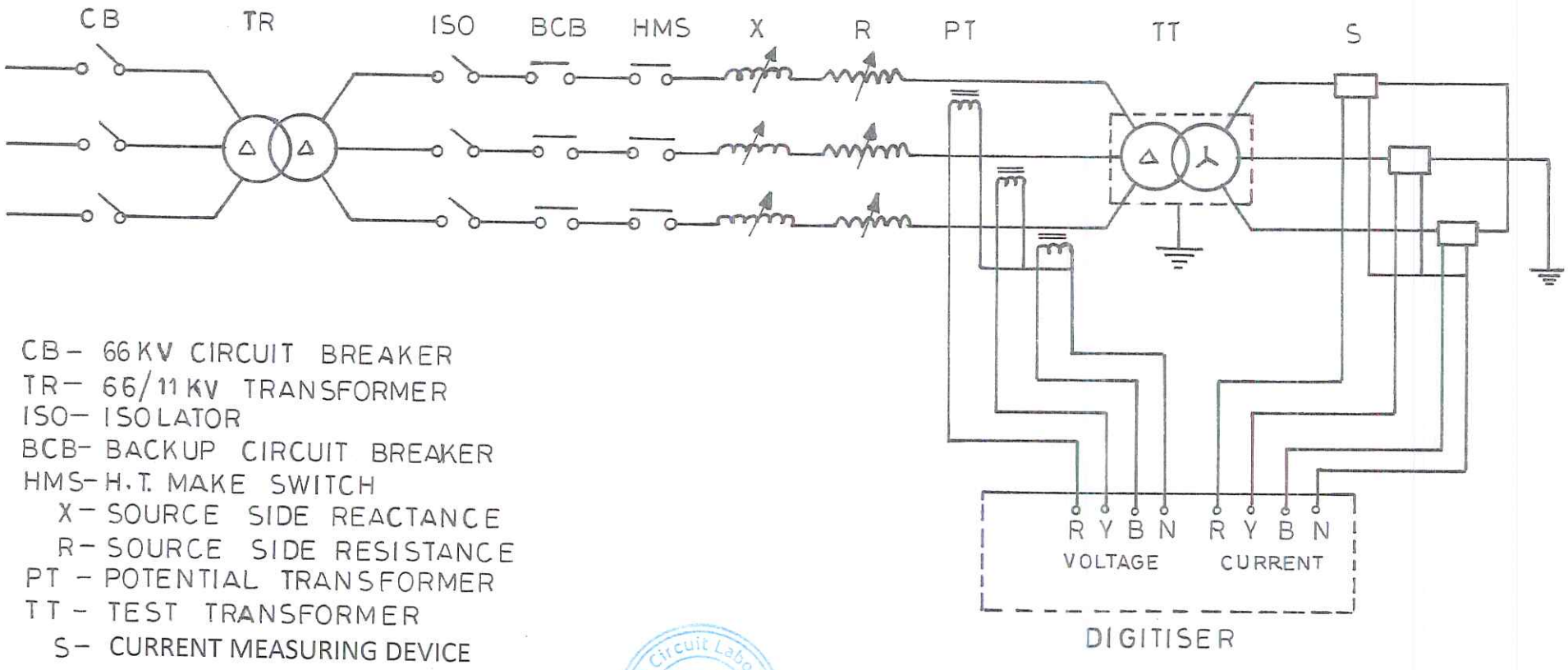
ULR NO.: TC538919000014147F
REPORT NO.: RP-1920-004071

DATE: 30.04.2019



TC 2767937



CB – 66 KV CIRCUIT BREAKER
TR – 66/11 KV TRANSFORMER
ISO – ISOLATOR
BCB – BACKUP CIRCUIT BREAKER
HMS – H.T. MAKE SWITCH
X – SOURCE SIDE REACTANCE
R – SOURCE SIDE RESISTANCE
PT – POTENTIAL TRANSFORMER
TT – TEST TRANSFORMER
S – CURRENT MEASURING DEVICE

REPORT NO.: RP-1920-004071
DATE : 30.04.2019

ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

SCHEMATIC CIRCUIT DIAGRAM

DRN. BY	CKD.	DATE	DRG. NO.
S.B.S.	M.B.M	27-1-98	OLSC/DTC/01

Short Circuit Laboratory * Vadodara *

Test Report No. RP-1920-004 P1
Date 30.04.2019
Product 25 KVA D.T.
Verified by
Verification of this drawing by ERDA is limited to relevant dimensional checks only.
Verified dimensions are marked with '*'

DISTRIBUTION TRANSFORMER

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.

KAROLA–BHINMAL ROAD KAROLA SANCHORE–343041
RAJASTHAN.(INDIA)

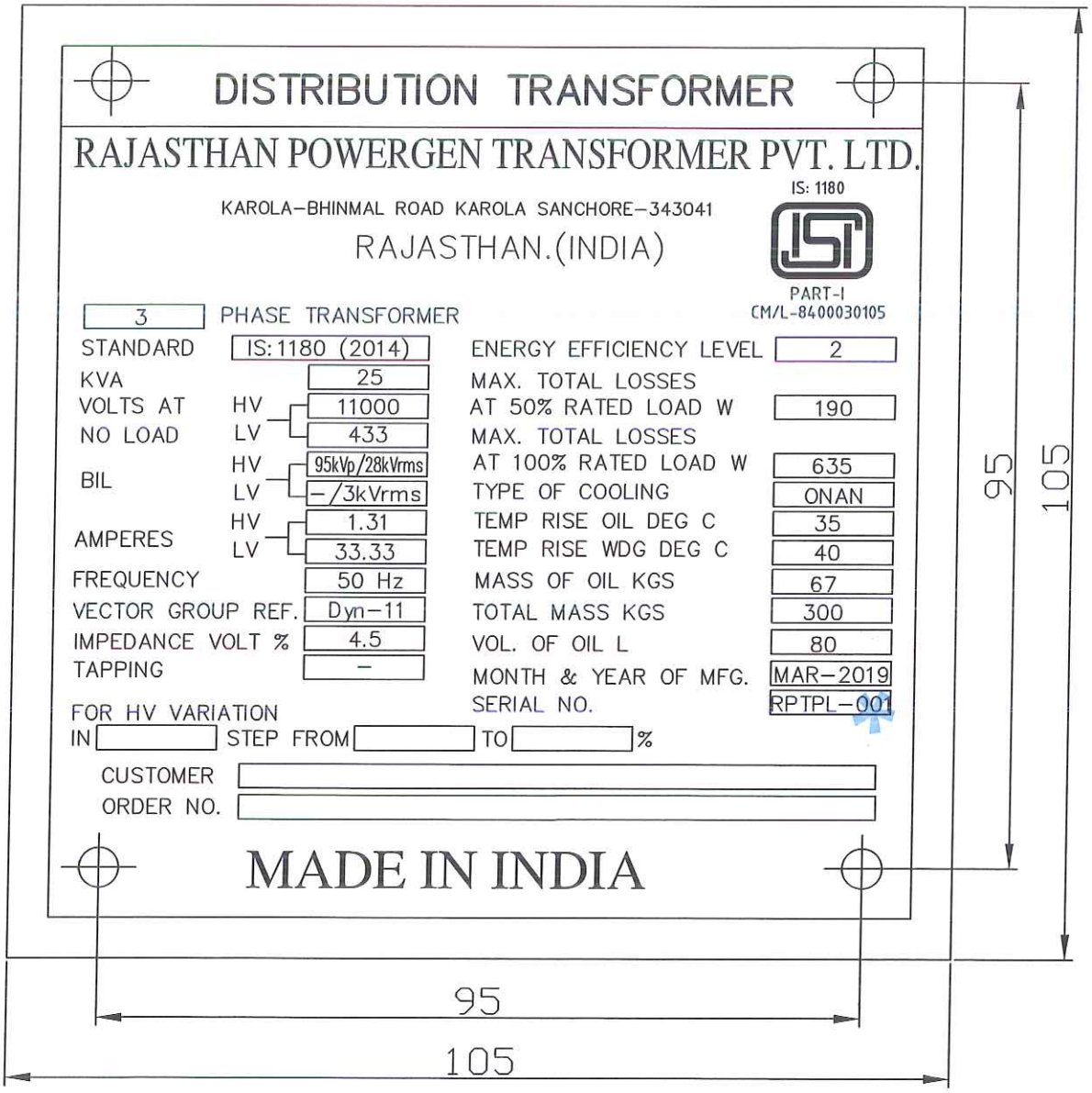
IS: 1180
PART-I
CM/L-8400030105

3	PHASE TRANSFORMER				
STANDARD		IS:1180 (2014)	ENERGY EFFICIENCY LEVEL		2
KVA		25	MAX. TOTAL LOSSES		
VOLTS AT	HV	11000	AT 50% RATED LOAD W		190
NO LOAD	LV	433	MAX. TOTAL LOSSES		
BIL	HV	95kVp/28kVrms	AT 100% RATED LOAD W		635
	LV	–/3kVrms	TYPE OF COOLING		ONAN
AMPERES	HV	1.31	TEMP RISE OIL DEG C		35
	LV	33.33	TEMP RISE WDG DEG C		40
FREQUENCY		50 Hz	MASS OF OIL KGS		67
VECTOR GROUP REF.		Dyn–11	TOTAL MASS KGS		300
IMPEDANCE VOLT %		4.5	VOL. OF OIL L		80
TAPPING		–	MONTH & YEAR OF MFG.		MAR–2019
			SERIAL NO.		RPTPL–001

FOR HV VARIATION
IN [ ] STEP FROM [ ] TO [ ] %

CUSTOMER
ORDER NO.

MADE IN INDIA



SIZE: 105x105 mm HOLE CENTER: 95x95 mm

NOTE:
* SERIAL NO,
YEAR OF MANUFACTURE &
MONTH OF MANUFACTURE
WILL BE PUNCHED AT THE TIME OF DISPATCH
MATERIAL : Anodized Aluminum
THICKNESS : 1.5mm

REV. NO.	DATE SIGN	BRIEF DESCRIPTION
	16.03.2019	01 of 02

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.
KAROLA–BHINMAL ROAD KAROLA SANCHORE–343041
RAJASTHAN.

DRN BY
CHD BY
APPD BY

RATING & TERMINAL MARKING PLATE FOR
25 KVA, 11/0.433 KV DISTRIBUTION TRANSFORMER
3 PHASE, ENERGY EFFICIENCY LEVEL–2

DRG. NO.RPTPL–25KVA–RP–01/02–2019

Short Circuit Laboratory
Vadodara

Test Report No. RP-1920-004071
Date 30.04.2019
Product 25 KVA DT
Verified by
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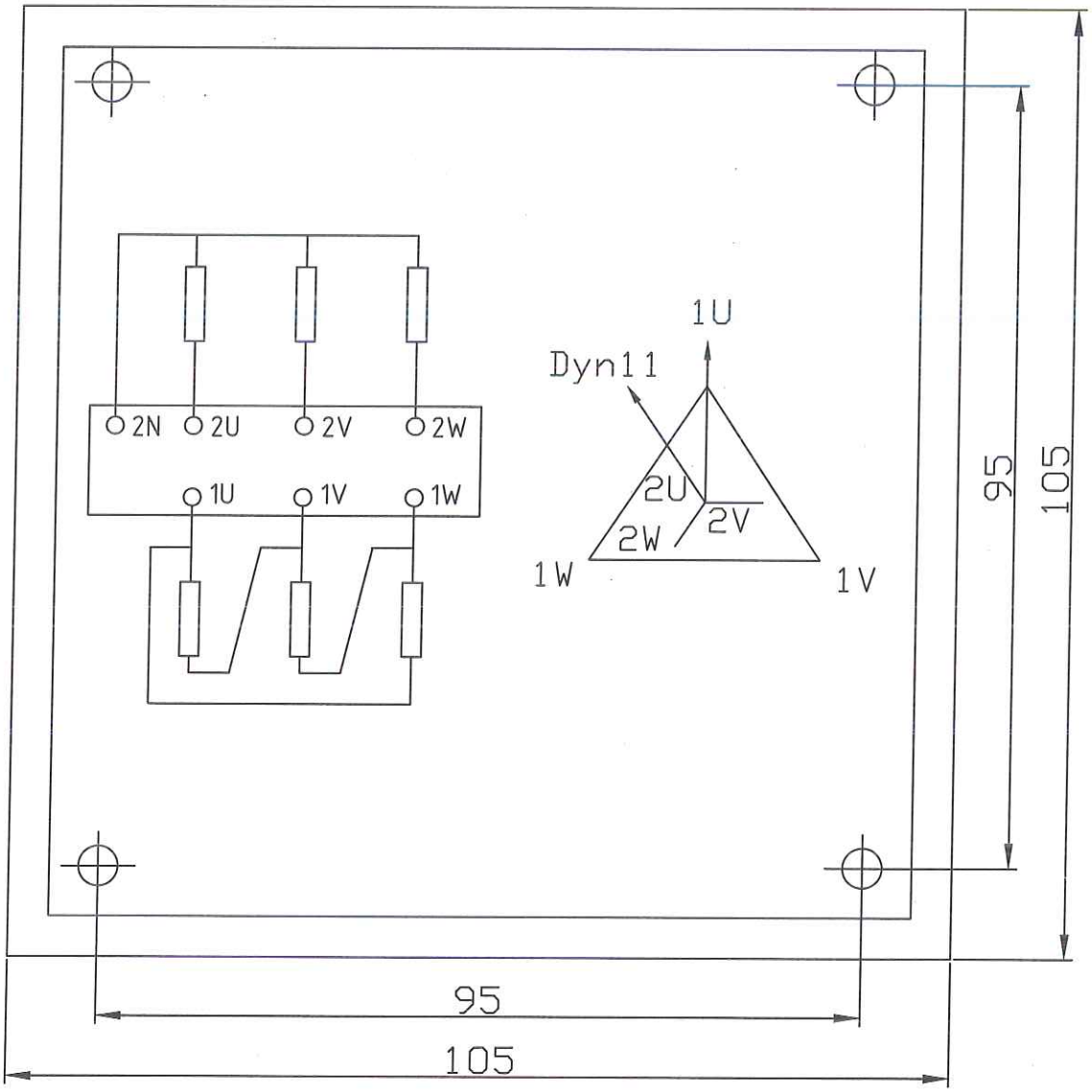
Verified dimensions are marked with "*"



SIZE: 105x105 mm HOLE CENTER: 95x95 mm

NOTE:
* SERIAL NO ,
YEAR OF MANUFACTURE &
MONTH OF MANUFACTURE
WILL BE PUNCHED AT THE TIME OF DISPATCH
MATERIAL : Anodized Aluminum
THICKNESS : 1.5 mm

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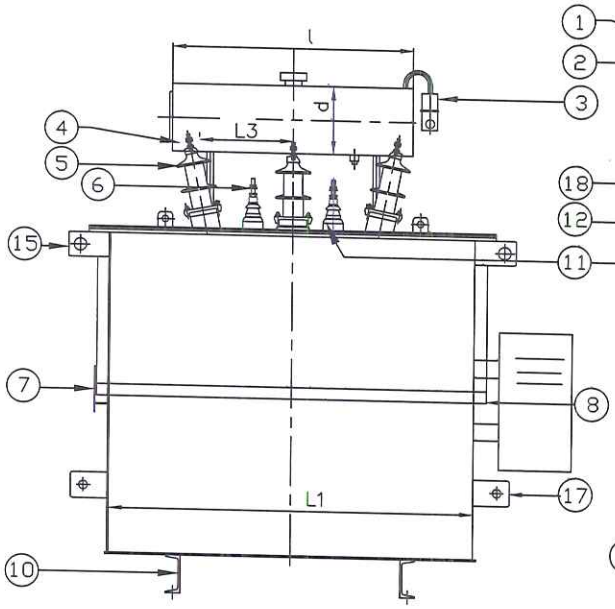
KAROLA–BHINMAL ROAD KAROLA SANCHORE–343041
RAJASTHAN.

DRN BY	
CHD BY	
APPD BY	

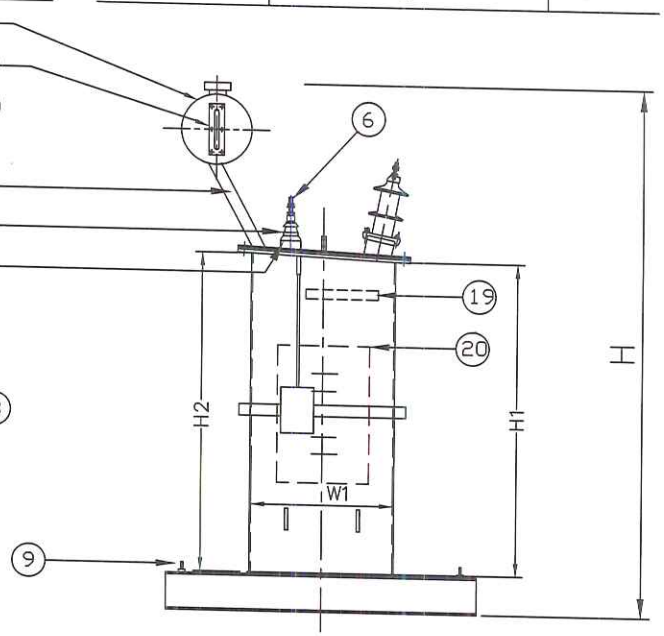
RATING & TERMINAL MARKING PLATE FOR
25 KVA, 11/0.433 KV DISTRIBUTION TRANSFORMER
3 PHASE , ENERGY EFFICIENCY LEVEL–2

DRG. NO. RPTPL–25KVA–RP–02/02–2019

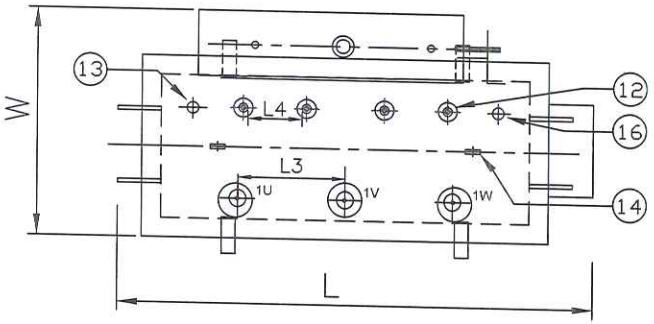
REV. NO.	DATE SIGN	BRIEF DESCRIPTION
	16.03.2019	02 of 02



ELEVATION



SIDE VIEW



PLAN

SR.NO.	ACCESSORIES	QTY.	TECHNICAL DETAILS AS PER SPEC.	TECHNICAL DETAILS AS PER OFFER
1	CONSERVATOR WITH OIL FILLING HOLE WITH CAP & DRAIN PLUG	1	M.S.	M.S.
2	OIL LEVEL GAUGE WITH 3 POSITION	1	--	--
*3	SILICAGEL BREATHER (500 Grams.)	1	AL. DIE CAST	AL. DIE CAST
4	H.V. TERMINAL 12m.m. DIA.WITH NUT	3	BRASS	BRASS
5	H.V. BUSHING 12KV, 250A	3	PORCELAIN	PORCELAIN
6	L.V. TERMINAL 12 m.m. DIA. WITH NUT	4	BRASS	BEASS
7	RATING &TERMINAL MARKING PLATE	1	ANODISED	ANODISED
8	STIFFENER ANGLE SIZE (40x40x5 mm.)	4	M.S.	M.S.
9	EARTHING TERMINAL WITH LUGS SIZE(16 Amp.)	2	M.S.	M.S.
10	BASE CHANNELS 75x40x460mm. LONG.	2	M.S.	M.S.
11	L.V. BUSHING TURRET	4	TENDER DRG.	TENDER DRG.
12	L.V. BUSHING 1.1KV,250A	4	PORCELAIN	PORCELAIN
13	THERMOMETER POCKET	1	M.S.	M.S.
14	LIFTING LUGS FOR COVER	2	M.S.	M.S.
15	LIFTING LUGS FOR TANK REINFORCED WITH FLAT	2	M.S.	M.S.
16	AIR RELEASE PLUG	1	M.S.	M.S.
17	PULLING LUG	4	M.S.	M.S.
18	CONSERVATOR PIPE	2	M.S.	M.S.
*19	METALLIC TIN PLATE	1	S.S.	S.S.
*20	MCCB BOX	1	-	-

	COOLING DETAILS	
1	TOTAL SURFACE AREA :-TANK: 1.1684 sq. m.	
2	NUMBER OF RADIATORS	N. A.
3	HEIGHT x WIDTH OF FINS	N. A.
1	TOTAL NUMBER OF COOLING FINS	N. A.

1	WEIGHTS IN KGS. (+/- 10% TOL.)		5	DIMENSIONS IN m.m.
	CORE	80		TRANSFORMER OVERALL (+/- 10% TOLERANCE)
	WINDINGS	33		L = 908
	TANK & FITTINGS	86		W = 495
	OIL	67		H = 1150
	TOTAL WEIGHT	300		TRANSFORMER TANK (+/- 10% TOLERANCE)
2	THICKNESS IN m.m.			L1 = 665
	TANK SIDE PLATES (MIN.)	3.15		W1 = 250
	TOP & BOTTOM PLATES (MIN.)	5		H1/H2 = 635 / 645
3	TOLERANCE		6	BUSHING CLEARANCES WITH ANGLE
	OVERALL DIMENSIONS	+/- 10 %		L3 (H.V.) 255 PHASE TO PHASE
4	DIMENSIONS OF CONSERVATOR			L4 (L.V.) 75 PHASE TO PHASE
	a) INSIDE DIAMETER IN mm.	140		L5 (H.V.) 205 PHASE TO EARTH
	b) LENGTH IN mm.	600		L6 (L.V.) 55 PHASE TO EARTH
	c) CAPACITY IN LTRS.	9		

Test Report No. RP-1920-00402
Date 30.04.2019
Product 25 kVA
Verified by
Verification of this drawing by ERDA is limited to relevant dimensional checks only. Verified dimensions are marked with "*"

Vadodara Short Circuit Laboratory

NOTE

1 SHAPE OF TANK: RECTANGULAR SHAPE
2 ALL DIMENSIONS ARE IM mm UNLESS OTHERWISE STATED.
3 METALLIC TIN PLATE: OPPOSITE SIDE OF COMBINED NAME PLATE
4 * NOT PROVIDED DURING TESTING

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.

KAROLA-BHINMAL ROAD KAROLA, SANCHORE-343041

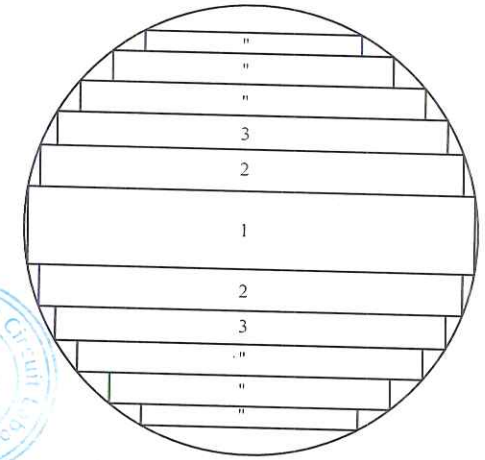
GENERAL ARRANGEMENT DRAWING
25 KVA 11/0.433 KV DIST. TRANSFORMER
ENERGY EFFICIENCY LEVEL-2

DRG.NO.: RPTPL-GA-25KVA-02-2019

DATE: 16.03.2019

S.N.		TECHNICAL DETAILS	
		AS PER SPECIFIED	AS PER OFFERED
1	PRIMARY VOLTAGE (KV)	11	11
2	SECONDARY VOLTAGE (KV)	0.433	0.433
3	RATING (KVA)	25	25
4	VECTOR GROUP	DYN-11	DYN-11
5	CONFORMING TO I.S.S.	1180 PART-I, 2014	1180 PART-I, 2014
6	PERMISSIBLE VOLTAGE ELUCTUATION %	12.5	12.5
7	TEMP OF TOP OIL (MAX) °C	35	35
8	TEMP OF WINDING (MAX)°C	40	40
	CORE DETAIL		
	a)CORE MATERIAL	CRGO	CRGO
	b)PRINCIPALSOURCE OF CORE MATERIAL		OPEN MARKET
	c)GRADE OF LAMINATION		M4 OR BETTER
	d) FLUX DENSITY w/m²	1.69 MAX	1.69 MAX
	e) NO STEPS OF CORE (NOS)		11
10	% IMPEDENCE	4.5	4.5
11	CORE DIMENSIONS		

STEP NO.	1	2	3	4	5	6	7	8	9	10	11
L MM	80	75	70	65	60	55	50	45	40	30	20
W MM	25.1	2 X6.1	2X4.3	2X3.3	2X2.7	2X2.3	2X2	2X1.7	2X1.4	2X2.2	2X1.5
GROSS SECTION cm²	20.08	9.15	6.02	4.29	3.24	2.53	2.00	1.53	1.12	1.32	0.6
TOTAL GROSS SECTION AREA cm² = 51.88 cm²											
EFFECTIVE CORE AREA - 51.88 x 0.97 = 50.32 cm²											



S.N.		AS PER SPECIFIED		AS OFFERED	
		HV	LV	HV	LV
12	WINDING				
	a) MATERIAL	ALU	ALU	ALU	ALU
	b) ELECTRIC CONDUCTIVITY M/Ω MM² AT 20°C			2.83	2.83
	c) CONDUCTOR SIZE IN mm x mm			0.935 DIA	3.7 x 8.5
	d) CONDUCTOR GROSS SECTION mm2			0.6866	30.59
	e) INSULATION MATERIAL			S.E.	D.P.C.
	f) CURRENT DENSITY A/mm2		1.3 WITH ±5% TOLERANCE	1.1034	1.0897
	g) NO OF TURNS PER PHASE			6688	152
	h) OUTER DIA. mm			194	124
	i) INSIDE DIA. mm			146	91
	j) AXIAL LENGTH mm.			79 each	343
	k) NO OF COILS PER PHASE			4	1
13	BUSHING	AS SPECIFIED		AS PER OFFERED	
	MINIMUM CREEPACE DISTANCE				
14	LOSSES				
	MAXIMUM TOTAL LOSSES @ 50%	190 W		190 W	
	MAXIMUM TOTAL LOSSES @ 100%	635 W		635 W	
15	TANK				
	SIDE WALL THICKNESS mm			3.15	
	TOP & BOTTOM PLATE THICKNESS mm			5	
	OIL USED				
16	NAME OF MANUFACTURER	APPROVED MAKE		ANY MAKE APP BY CO.	
	GRADE	EHV		EHV	
	VOLUME (Kgs.,).			67	
	IN TANK (IN LTRs.)			77	
	IN CONSERVATOR (IN LTRs.)			3	
	TOTAL (IN LTRs.)			80	
17	BREATHER			ANY MAKE APPR BY CO.	
	CAPACITY	500 gms.		500 gms.	
18	RADIATOR			ANY MAKE APPR BY CO.	
	MAKE			TO BE ENCLOSED	
	DETAILD HEAT DISSIPATION CALCULATIONS.	TO BE ENCLOSED			

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.
KAROLA–BHINMAL ROAD KAROLA SANCHORE–343041

TECHNICAL DETAIL DRAWING
25 KVA 11/0.433 KV DIST. TRANSFORMER
ENERGY EFFICIENCY LEVEL-2

DRG.NO.: RPTPL–TD–25KVA–03–2019
DATE: 16.03.2019

Test Report No. RT1920-000407
Date 30.04.2019
Product 25 kVA D.T.
Verified by WP

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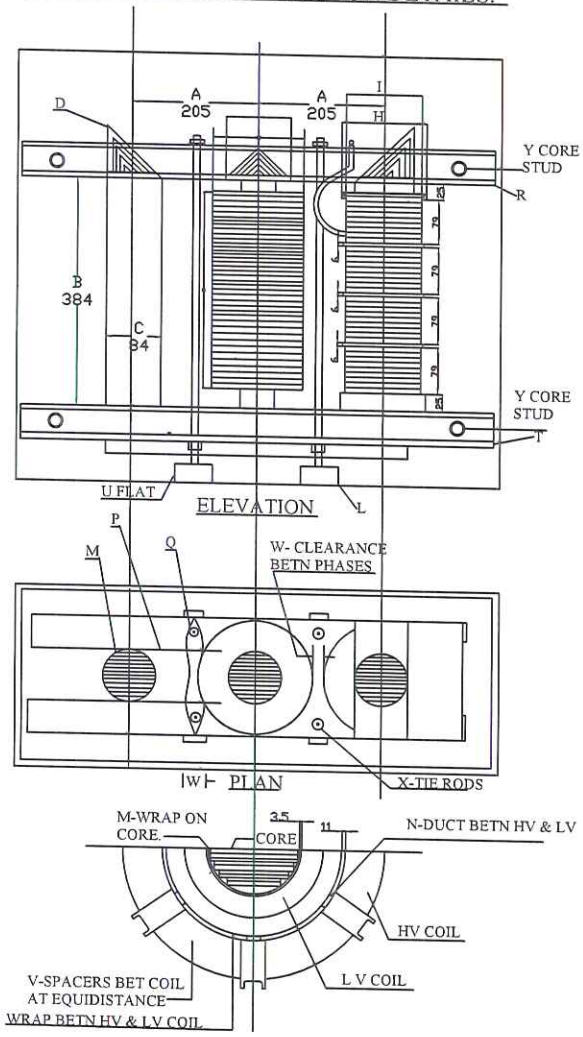
WINDING & CONSTRUCTION DETAILS.



CORE	DESCRIPTION	AS PER TECH SPECIFIED	AS FOR OFFER
A	LEG. CENTRES mm.		205
B	WINDOW HEIGHT (CHANNEL TO CHANNEL)		384
C	CORE CIRCLE mm.		84
D	NO OF STEPS.		11
	EFFECTIVE CORE AREA CM²		50.32
L.V. COIL			
E	OUTER DIA IN mm.		124
F	INSIDE DIA IN mm.		91
G	AXIAL LENGTH mm.		343
	CONDUCTOR CROSS SECT. mm2		30.59
	CONDUCTOR INSULATION		DPC
H.V.COIL			
	NO OF H.V.COILPER Ph.		4
H	OUTER DIA mm.		194
I	INSIDE DIA mm.		146
J	AXIAL LENGTH mm.		79 Each
	CONDUCTOR CROSS SECT. mm2		0.6866
	CONDUCTOR INSULATION		S.E.
INSULATION	INSULATION BETWEEN		
K	(TAP COILS) mm.		---
L	BASE FLAT INSULATION mm.		2
M	GAP BETWEEN CORE & L.V. mm.	3.5	3.5
N	WEDGES BETWEEN H.V. & L.V. COILS NO.		6
O	GAP BETN H.V. & L.V. mm.	MIN 11	MIN 11
P	FRAME CHANNEL INSULATION		2
Q	PHASE BARRIER mm.	2 x 1	2 x 1
R	END INSULATION mm	25	25
S	CLEARANCE TO TANK WALL mm.	30	30
	FROM H.V. WDG.		
T	BOTTOM FRAME SIZE ISMC mm.		75 x 40
U	BASE M.S. FLAT SIZE mm.		40 x 10
V	NO. OF SPACERS BETN TWO HV COILS	6	6
W	INTER PHASE CLEARANCE mm.	MIN 10 mm	MIN 10 mm
X	TIE ROD SIZE & NO.		12 mm x 4
Y	CORE STUD SIZE & NO.		12 mm x 4

NOTE:
THICKNESS OF SPACER = 3MM

Test Report No. RI-1926-0044231
Date 30.04.2019
Product 25 kVA 0-2
Verified by
Verification of this drawing by ERDA is limited to relevant dimensional checks only. Verified dimensions are marked with "*"

Vadodara * Short Circuit Laboratory *

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.
KAROLA–BHINMAL ROAD KAROLA SANCHORE–343041

INTERNAL ARRANGEMENT DRAWING
25 KVA 11/0.433 KV DIST. TRANSFORMER
ENERGY EFFICIENCY LEVEL-2

DRG.NO.: RPTPL–IA–25KVA–04–2019
DATE: 16.03.2019