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Certificate No. : TC-5389

TEST REPORT

ULR-TC538919000019971F SHEET 1 OF 21

NAME & ADDRESS OF CUSTOMER **RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.** Khasara No. 911-914 Karola-Bhinmal Road, Karola, Sanchore, Rajasthan – 343 041 (INDIA)	**TEST REPORT NO.:** RP-1920-011584 **DATE:** 22/06/2019 **CUSTOMER REF. No.:** Nil — **DATED:** 15/06/2019 **DATE OF SAMPLE RECEIPT:** 04/06/2019 — **DATE OF TESTING:** 17/06/2019 to 22/06/2019
SAMPLE DESCRIPTION **10 kVA Distribution Transformer** 11000/433 Volts, 0.525/13.33 Amp., Oil filled, Vector Group: Dyn-11, Further details as per sheet No. 3 OF 21	**SAMPLE IDENTIFICATION** **ERDA SAMPLE CODE NO.:** ERDA-00319068 **SERIAL NO.:** RPTPL-001 **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 & 3]

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 for short-circuit withstand test as specified by customer.

PREPARED BY **CHECKED BY** **S. P. SONI**
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.
5. In case of any dispute, Vadodara will be the exclusive jurisdiction & shall be construed as where the cause has arised.

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2.	Routine tests before short circuit	Sheet No. 4 OF 21 to 5 OF 21
3.	Short-circuit withstand test	Sheet No. 6 OF 21 to 7 OF 21
4.	Routine tests after short circuit	Sheet No. 8 OF 21 to 9 OF 21
5.	Oscillogram	Sheet No. 10 OF 21 to 20 OF 21
6.	Photograph	Sheet No. 21 OF 21
7.	Oscillogram No.	0327/01 to 0327/11
8.	Photograph No.	1920-003977/0308
9.	Test circuit diagram No.	OLSC/DTC/01
10.	Drawing No.	RPTPL-10KVA-RP-01/02-2019 RPTPL-10KVA-RP-02/02-2019 RPTPL-GA-10KVA-02-2019 RPTPL-TD-10KVA-03-2019 RPTPL-IA-10KVA-04-2019

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TEST REPORT NO.: RP-1920-011584 SHEET 3 OF 21
DATE: 22/06/2019

TECHNICAL SPECIFICATIONS OF TEST OBJECT ASSIGNED BY CUSTOMER

1.	Name of manufacturer	: **RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.**
2.	Equipment	: **10 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 & 3]
4.	Serial No.	: RPTPL-001
5.	Type	: Outdoor, Oil Cooled, Al wound, CRGO core, Non Sealed type, Concentric circular coil
6.	kVA rating	: 10
7.	Rated voltage H.V. (Volts)	: 11000
	L.V. (Volts)	: 433
8.	Rated current H.V. (Amp.)	: 0.525
	L.V. (Amp.)	: 13.33
9.	Number of phases	: 3
10.	Connection H.V./L.V.	: Delta/Star
11.	Frequency (Hz.)	: 50
12.	Type of cooling	: ONAN
13.	Temperature rise of oil/winding	: 35°C/40°C
14.	Percentage Impedance	: 4.5 %
15.	Primary winding conductor	: SE Aluminium wire, bare dia. 0.76mm
16.	Secondary winding conductor	: DPC Aluminium strip (3mm x 7mm)
17.	Quantity of oil (Litre)	: 75
18.	Weight of oil (kg.)	: 63
19.	Total weight (kg.)	: 262
20.	Vector group	: Dyn-11
21.	Year of manufacture	: 2019
22.	Insulation level H.V.	: 28 kVrms
23.	Insulation level L.V.	: 3 kVrms
24.	Total losses at 75°C (Watts)	: 84 Max. (at 50 % load)
25.	Total losses at 75°C (Watts)	: 240 Max. (at 100 % load)

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ROUTINE TEST RESULTS BEFORE SHORT CIRCUIT

a) MEASUREMENT OF WINDING RESISTANCE

Measurement at oil temperature: 37.4°C					
LV Winding resistance (mΩ)			HV Winding Resistance (Ω)		
u – v	v –w	w-u	U – V	V – W	W –U
201.64	201.86	201.66	217.50	217.48	217.20

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	44.000	-0.002	44.025	0.055	44.034	0.075

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

Oil temp.: 36.1°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
0.525	478.115	50.124	146.101	4.336	167	4.410

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

Oil temp.: 36.1°C

Test current (Amp.) Iavg.	Impedance voltage (V) Vavg.	Frequency (Hz.)	Load loss measured (Watts)	Load loss computed at 75°C (Watts)
0.262	238.283	50.069	36.397	42

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e) MEASUREMENT OF NO-LOAD LOSS AND CURRENT

Oil temp.: 36.1°C

Applied Voltage (V) Vavg.	Current (Amp.) Iavg.	Freq. (Hz.)	Losses Measured (Watts)
433.090	0.188	50.013	33

- Total losses at 75°C: 75 Watts (at 50 % load)
- Total losses at 75°C: 200 Watts (at 100% load)

f) MEASUREMENT OF INSULATION RESISTANCE

Oil temp.: 37.4°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.	0327/01	-	- 464 -	240 237 233	237	0.1	Calibration shot
2.	0327/02	11	- 580 -	307 303 300	303	0.5	No Abnormality
3.	0327/03	11	- 570 -	307 302 299	303	0.5	No Abnormality
4.	0327/04	11	- 575 -	306 302 298	302	0.5	No Abnormality
5.	0327/05	11	- - 578	307 302 299	303	0.5	No Abnormality
6.	0327/06	11	- - 576	307 301 299	302	0.5	No Abnormality
7.	0327/07	11	- - 570	307 301 298	302	0.5	No Abnormality
8.	0327/08	11	577 - -	307 301 298	302	0.5	No Abnormality
9.	0327/09	11	572 - -	307 301 298	302	0.5	No Abnormality
10.	0327/10	11	574 - -	305 299 297	300	0.5	No Abnormality
11.	0327/11	11	- 576 -	305 300 297	301	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		4.13	4.14	4.16	-	-	-
2.	After the test no.	2.	4.14	4.15	4.16	0.24	0.24	0.00
3.	After the test no.	3.	4.14	4.15	4.16	0.24	0.24	0.00
4.	After the test no.	4.	4.14	4.14	4.16	0.24	0.00	0.00
5.	After the test no.	5.	4.13	4.15	4.16	0.00	0.24	0.00
6.	After the test no.	6.	4.14	4.15	4.16	0.24	0.24	0.00
7.	After the test no.	7.	4.14	4.15	4.16	0.24	0.24	0.00
8.	After the test no.	8.	4.14	4.15	4.16	0.24	0.24	0.00
9.	After the test no.	9.	4.14	4.15	4.16	0.24	0.24	0.00
10.	After the test no.	10.	4.13	4.15	4.16	0.00	0.24	0.00
11.	After the test no.	11.	4.14	4.14	4.16	0.24	0.00	0.00

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ROUTINE TEST RESULTS AFTER SHORT CIRCUIT

a) MEASUREMENT OF WINDING RESISTANCE

Measurement at oil temperature: 33.9°C					
LV Winding resistance (mΩ)			HV Winding Resistance (Ω)		
u – v	v – w	w –u	U – V	V – W	W –U
198.86	199.13	198.94	214.64	214.60	214.34

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	43.998	-0.007	44.030	0.066	44.024	0.052

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

Oil temp.: 33.1°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
0.524	475.086	49.914	143.892	4.334	167	4.414

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

Oil temp.: 33.1°C

Test current (Amp.) Iavg.	Impedance voltage (V) Vavg.	Frequency (Hz.)	Load loss measured (Watts)	Load loss computed at 75°C (Watts)
0.262	237.147	49.872	35.962	42

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e) MEASUREMENT OF NO-LOAD LOSS AND CURRENT

Oil temp.: 33.1°C

Applied Voltage (V) Vavg.	Current (Amp.) Iavg.	Freq. (Hz.)	Losses Measured (Watts)
433.014	0.186	50.028	33

- Total losses at 75°C: 75 Watts (at 50 % load)
- Total losses at 75°C: 200 Watts (at 100% load)

f) MEASUREMENT OF INSULATION RESISTANCE

Oil temp.: 33.9°C

Measured Between	DC Test Voltage (V)	obtained 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 spacers : Intact
3) 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 the short-circuit withstand test found within limits as per standard.

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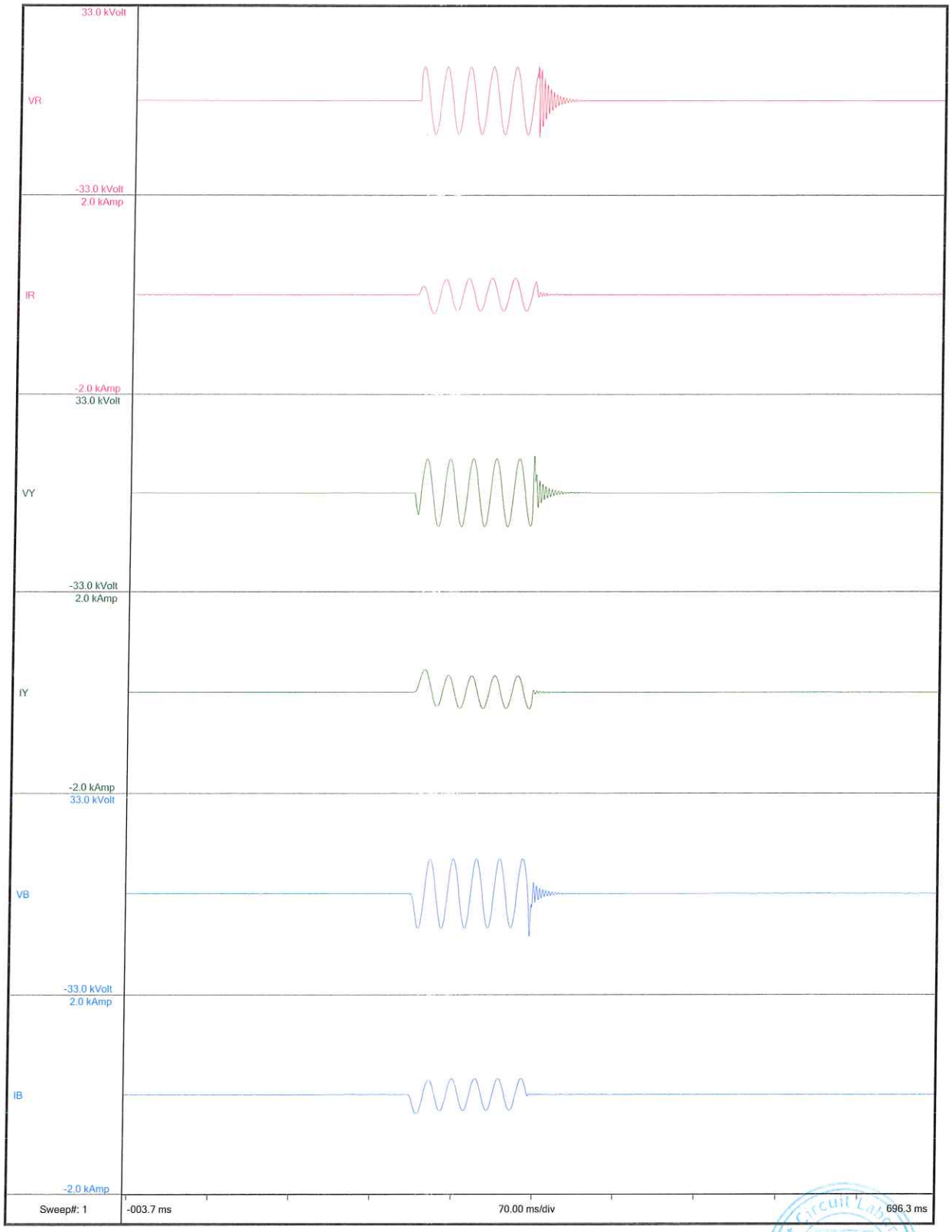

OSCILLOGRAM NO. : 0327/01

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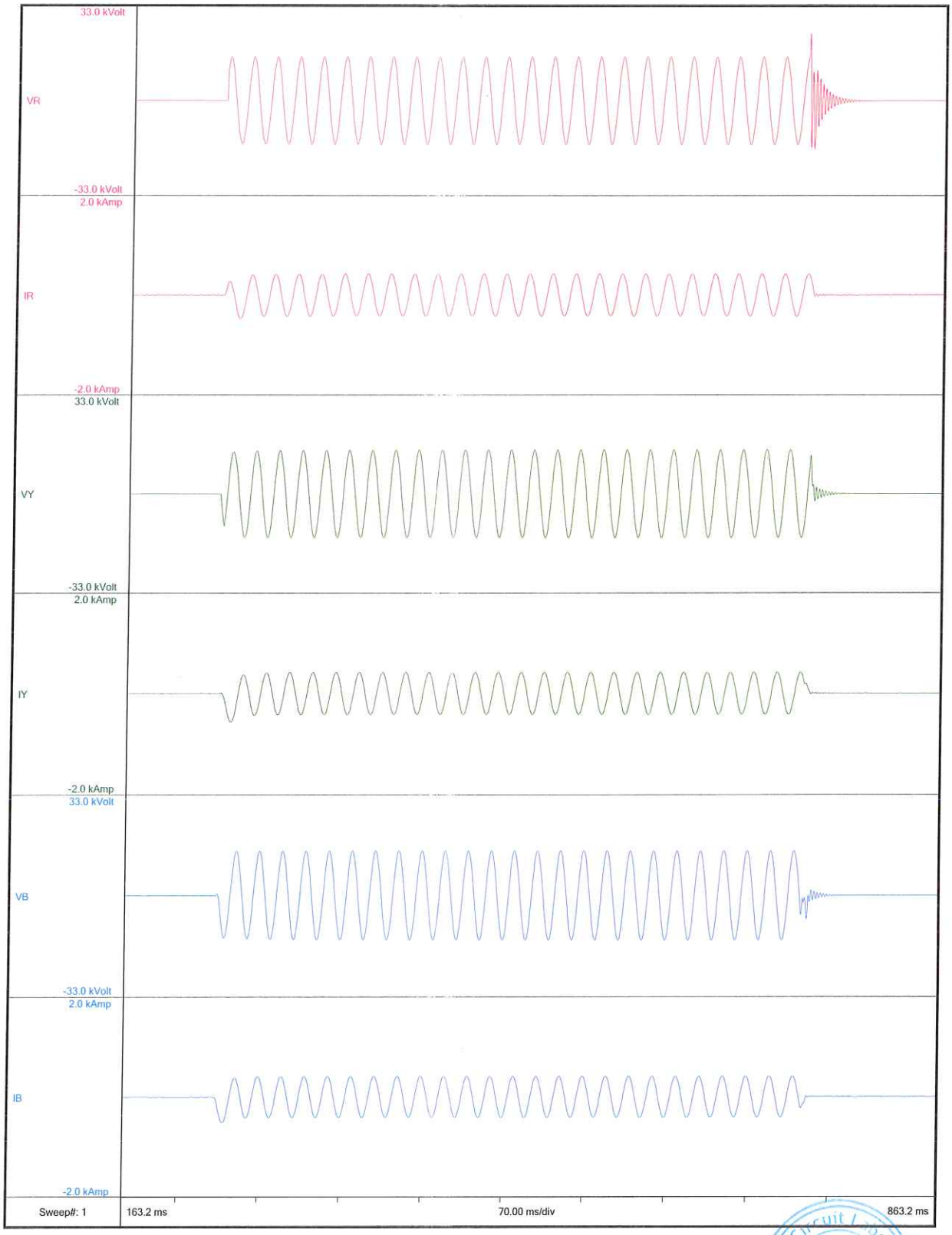

OSCILLOGRAM NO. : 0327/02

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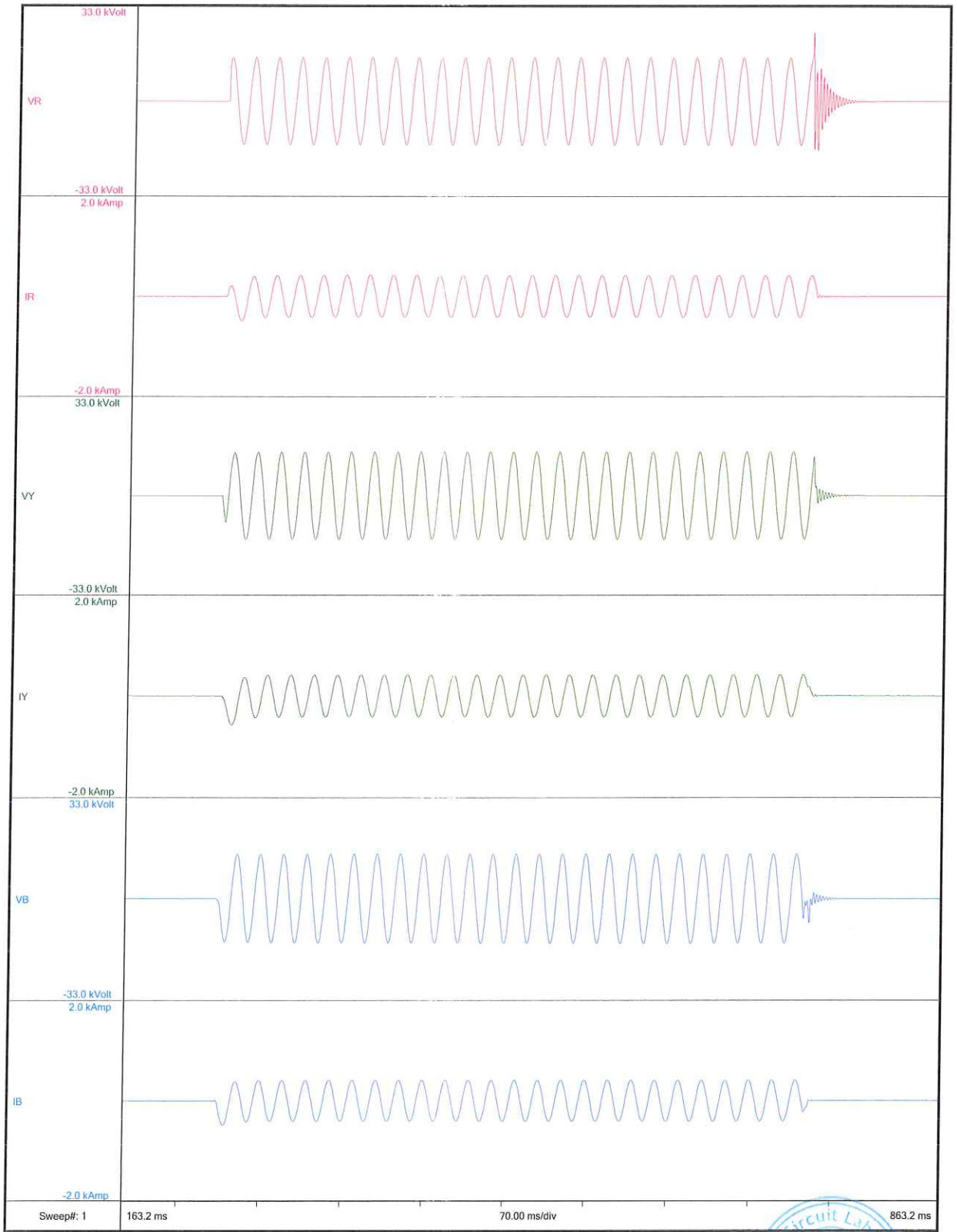

OSCILLOGRAM NO. : 0327/03

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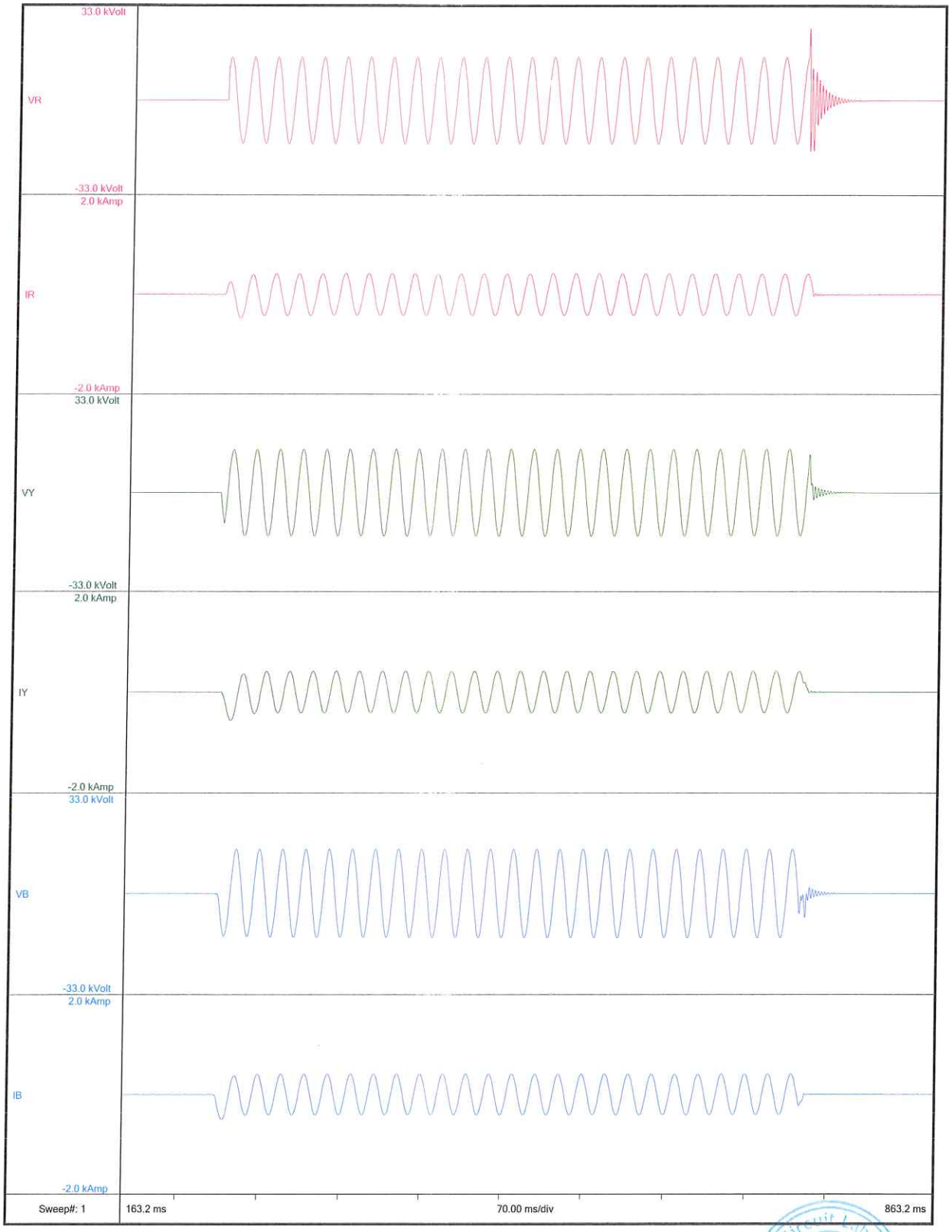

OSCILLOGRAM NO. : 0327/04

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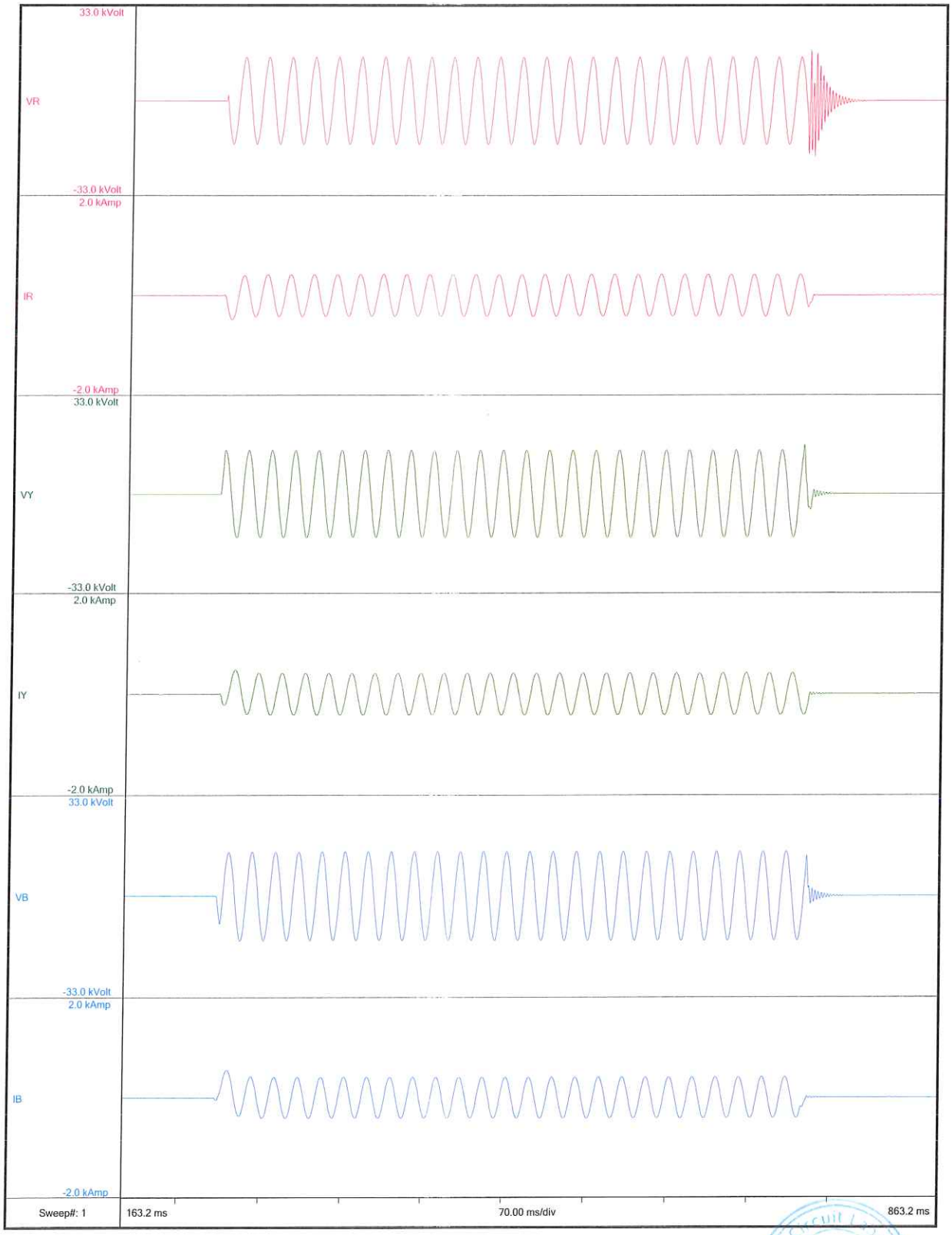

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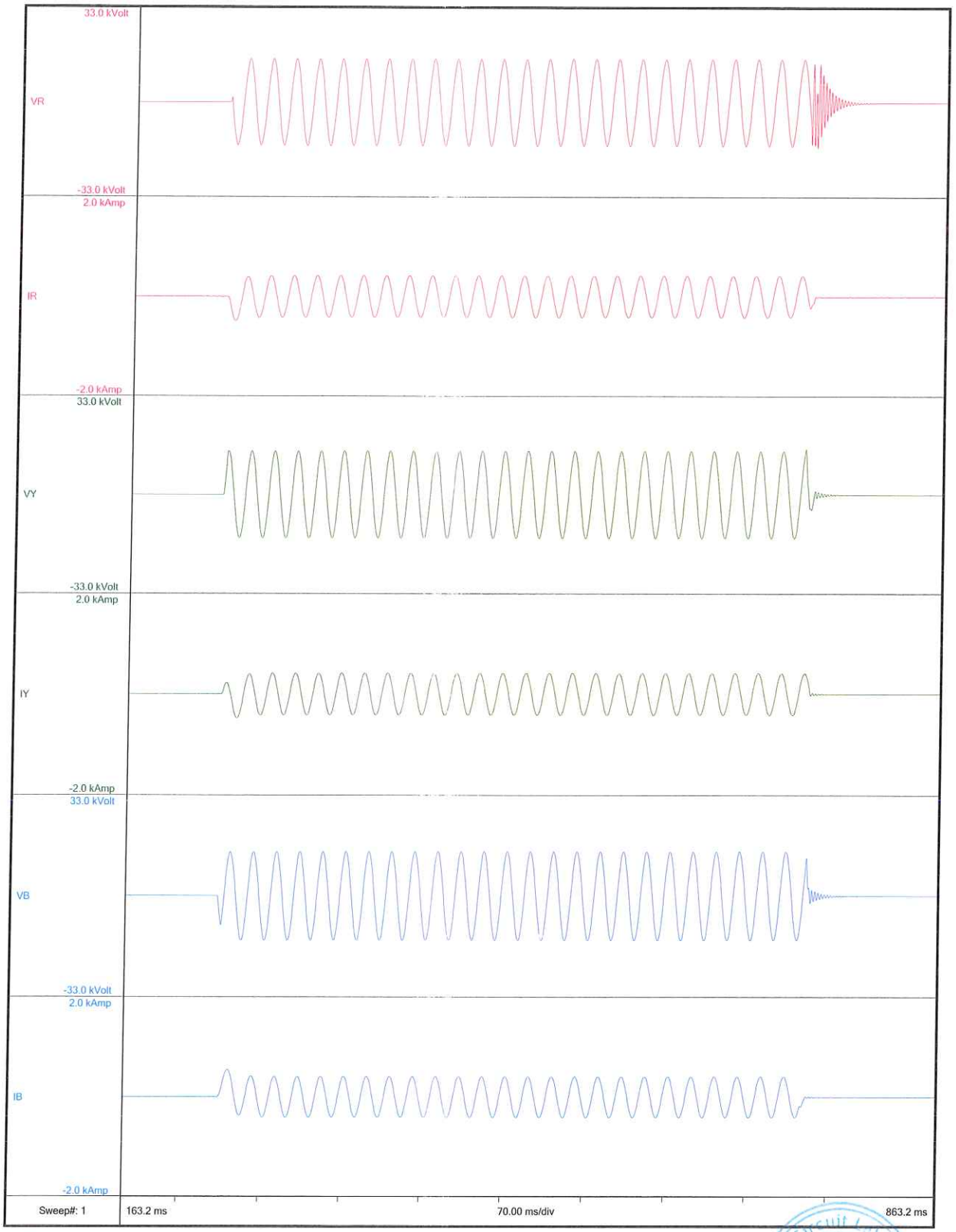

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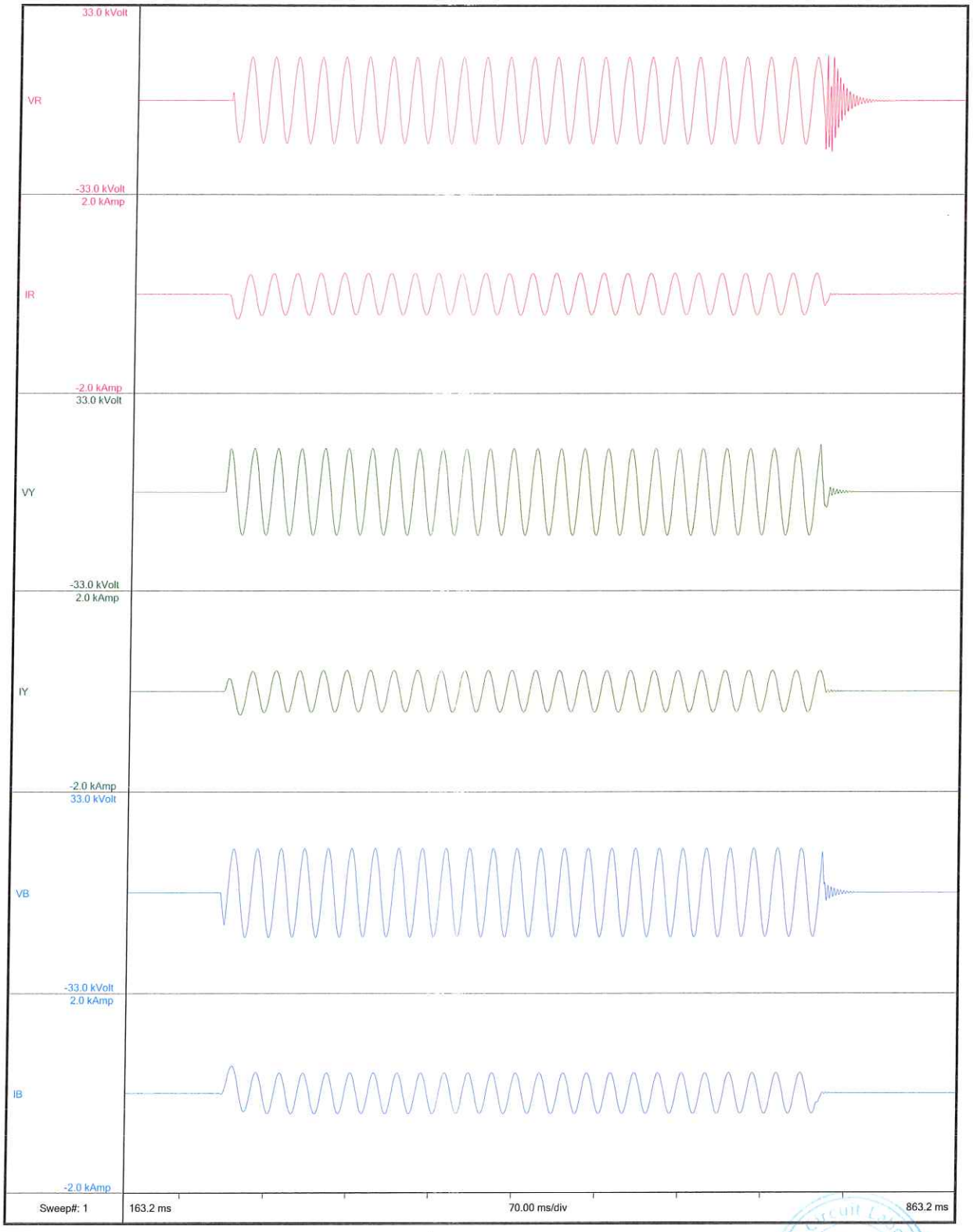
DATE: 22/06/2019



OSCILLOGRAM NO. : 0327/07

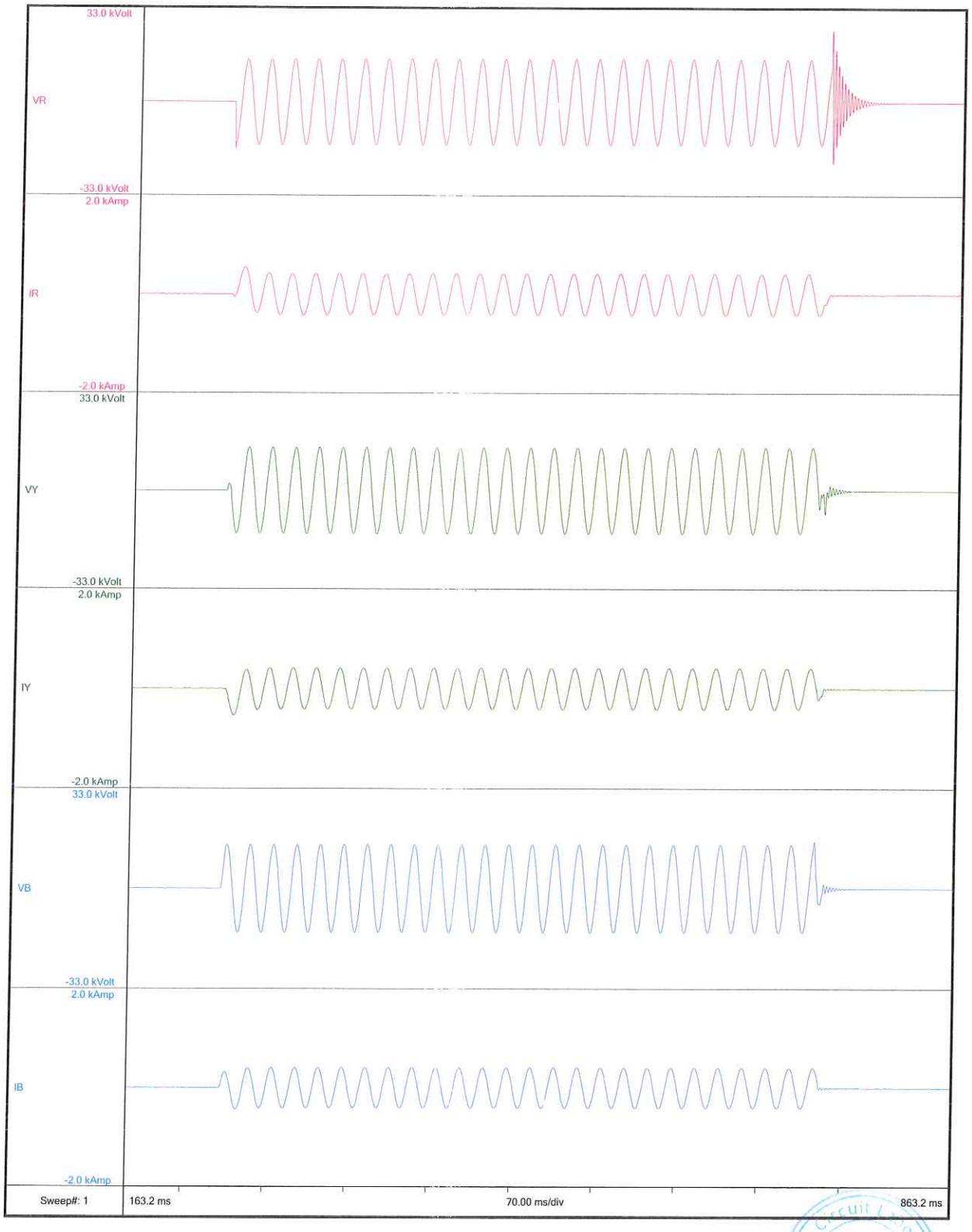
TC 2797033

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

ULR-TC538919000019971F

TEST REPORT NO.: RP-1920-011584

DATE: 22/06/2019



OSCILLOGRAM NO. : 0327/08

TC 27970034

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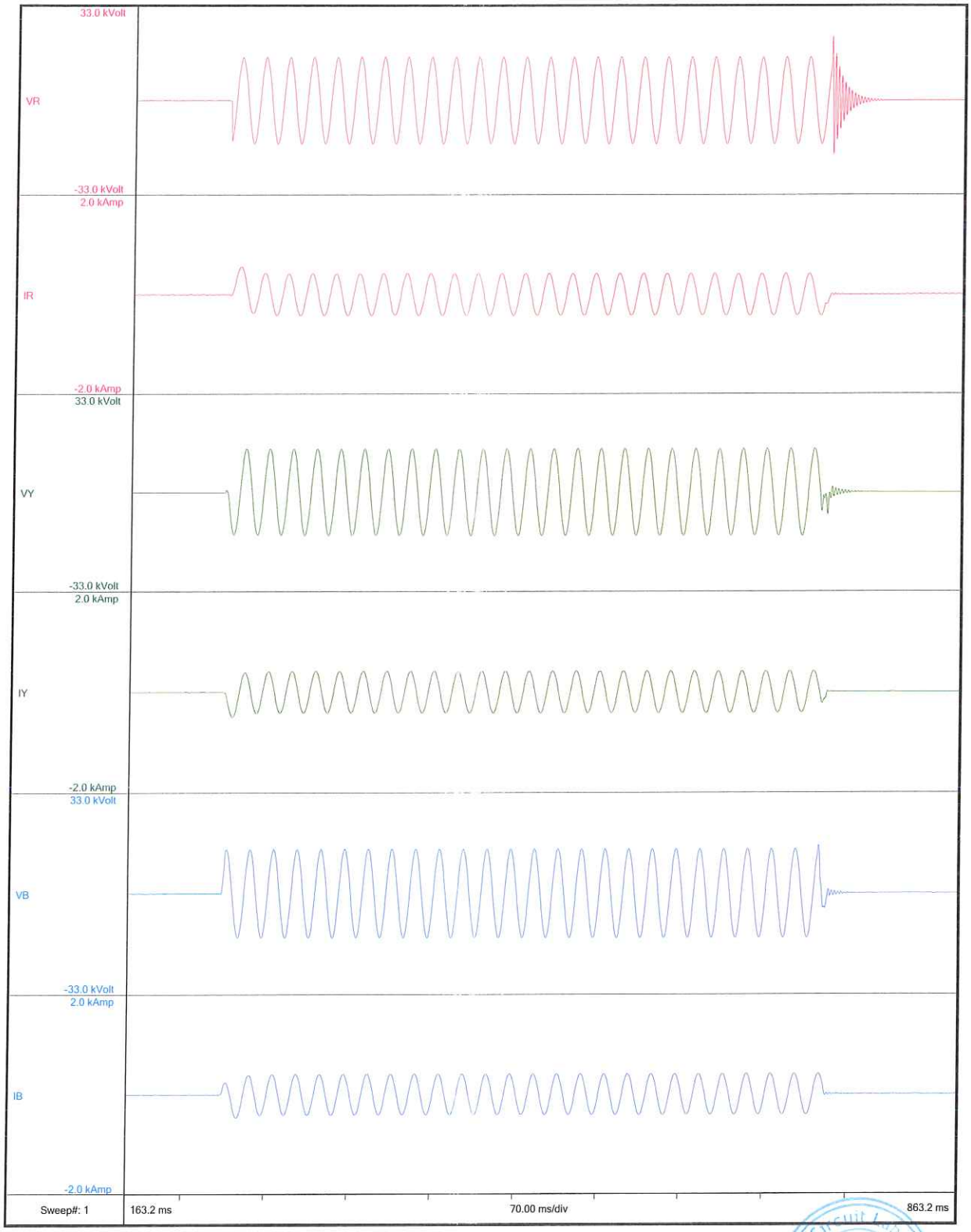
Certificate No. : TC-5389

ULR-TC538919000019971F

TEST REPORT NO.: RP-1920-011584

DATE: 22/06/2019



OSCILLOGRAM NO. : 0327/09

Short Circuit Laboratory Vadodara

TC 2797035

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Fax : +91 (0265) 2638382
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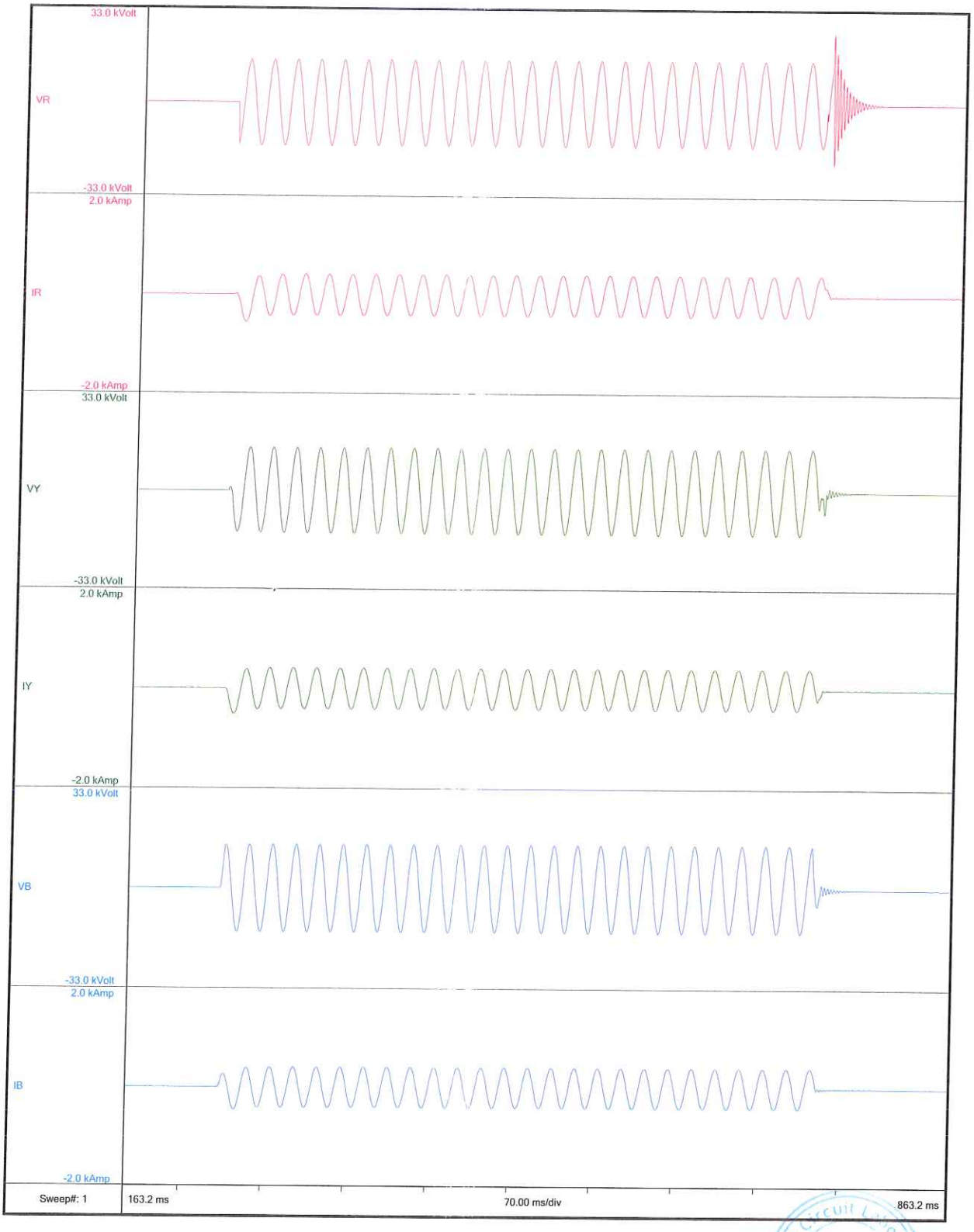
Web : http://www.erda.org
Certificate No. : TC-5389

ULR-TC538919000019971F

TEST REPORT NO.: RP-1920-011584

DATE: 22/06/2019



OSCILLOGRAM NO. : 0327/10

TC 2797036

ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION
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Fax : +91 (0265) 2638382
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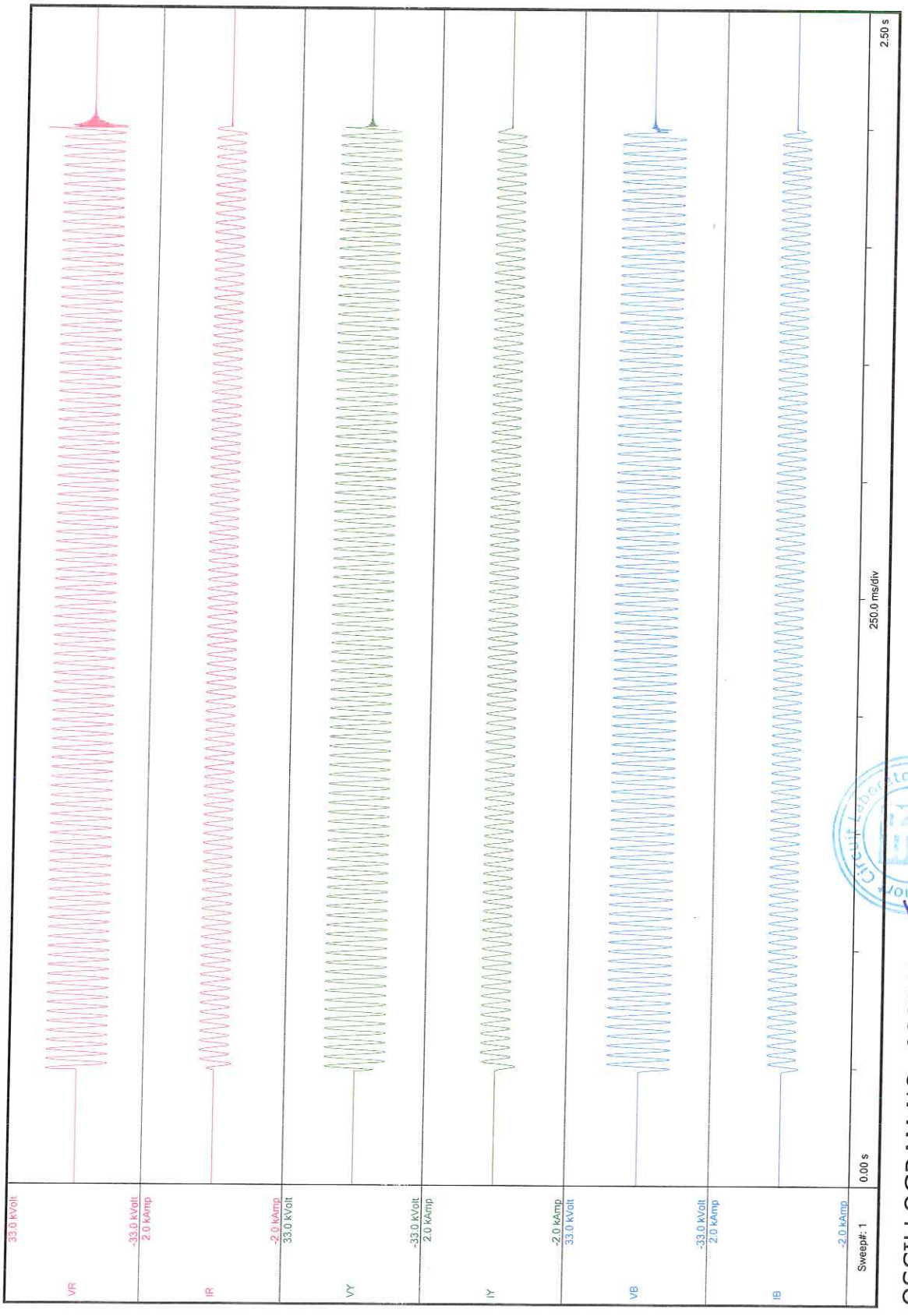
Web : http://www.erda.org
Certificate No. : TC-5389

ULR-TC538919000019971F

TEST REPORT NO.: RP-1920-011584

DATE: 22/06/2019



OSCILLOGRAM NO.:0327/11

TC 2797037

ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION
(Accredited by the National Accreditation Board for Testing and Calibration Laboratories, Govt. of India)
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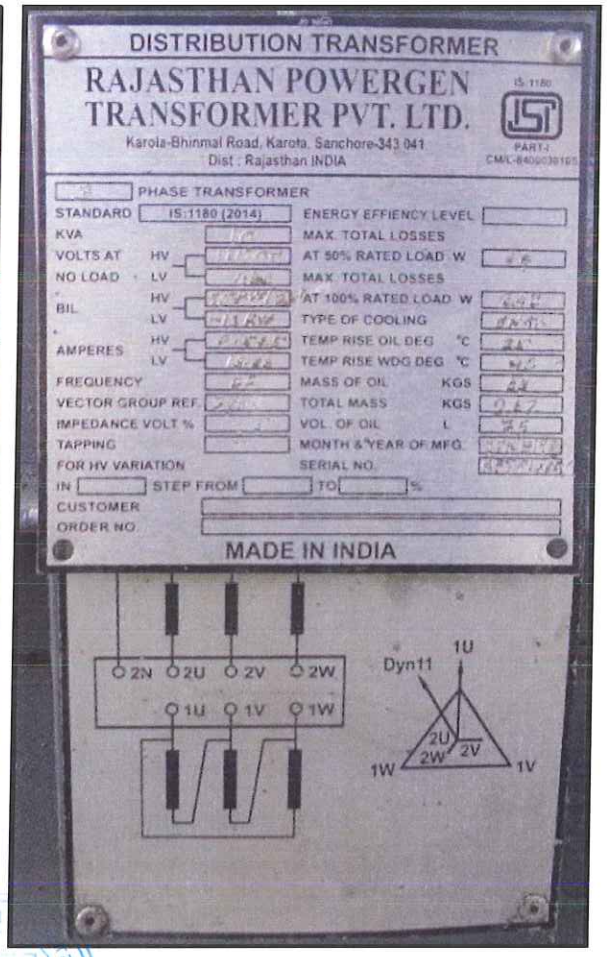
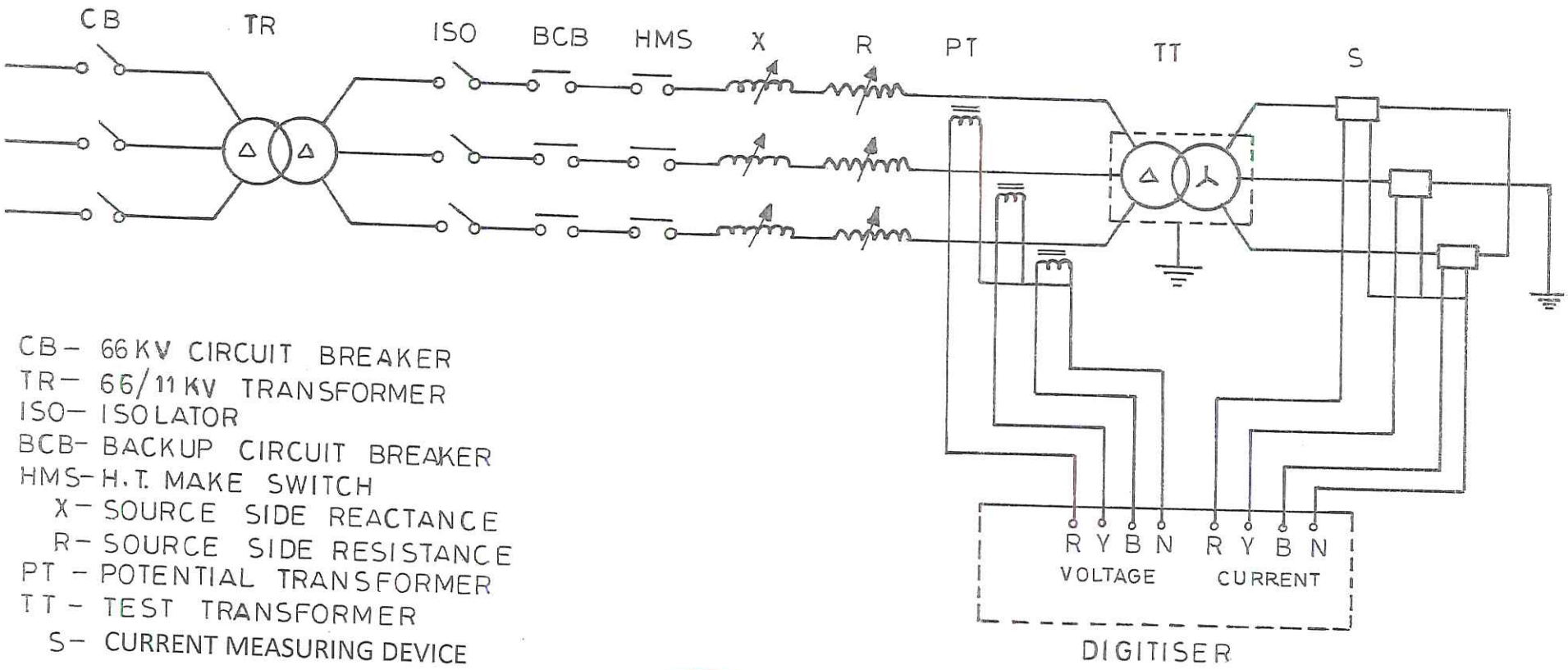
Fax : +91 (0265) 2638382
E-mail : erda@erda.org
Web : http://www.erda.org
Certificate No. : TC-5389

ULR-TC538919000019971F
TEST REPORT NO.: RP-1920-011584 SHEET 21 OF 21
DATE: 22/06/2019



TC 2806570



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

Short Circuit Laboratory Vadodara

REPORT NO.: RP-1920-011584
DATE : 22/06/2019

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

DISTRIBUTION TRANSFORMER

RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.

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

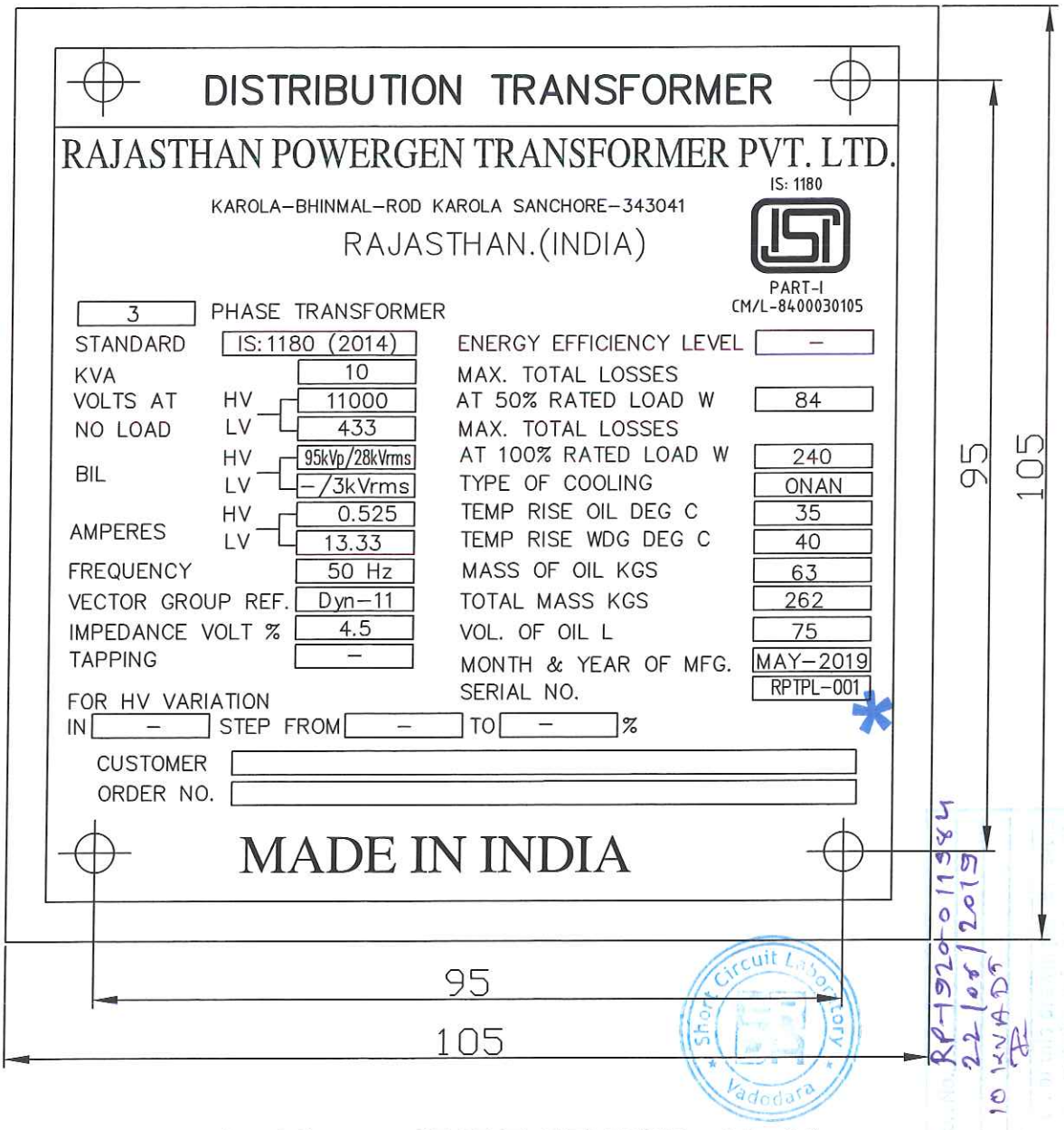
IS: 1180
PART-I
CM/L-8400030105

3	PHASE TRANSFORMER				
STANDARD		IS:1180 (2014)	ENERGY EFFICIENCY LEVEL		–
KVA		10	MAX. TOTAL LOSSES		
VOLTS AT NO LOAD	HV	11000	AT 50% RATED LOAD W		84
	LV	433	MAX. TOTAL LOSSES		
BIL	HV	95kVp/28kVrms	AT 100% RATED LOAD W		240
	LV	–/3kVrms	TYPE OF COOLING		ONAN
AMPERES	HV	0.525	TEMP RISE OIL DEG C		35
	LV	13.33	TEMP RISE WDG DEG C		40
FREQUENCY		50 Hz	MASS OF OIL KGS		63
VECTOR GROUP REF.		Dyn–11	TOTAL MASS KGS		262
IMPEDANCE VOLT %		4.5	VOL. OF OIL L		75
TAPPING		–	MONTH & YEAR OF MFG.		MAY–2019
			SERIAL NO.		RPTPL–001

FOR HV VARIATION IN – STEP FROM – TO – %

CUSTOMER
ORDER NO.

MADE IN INDIA



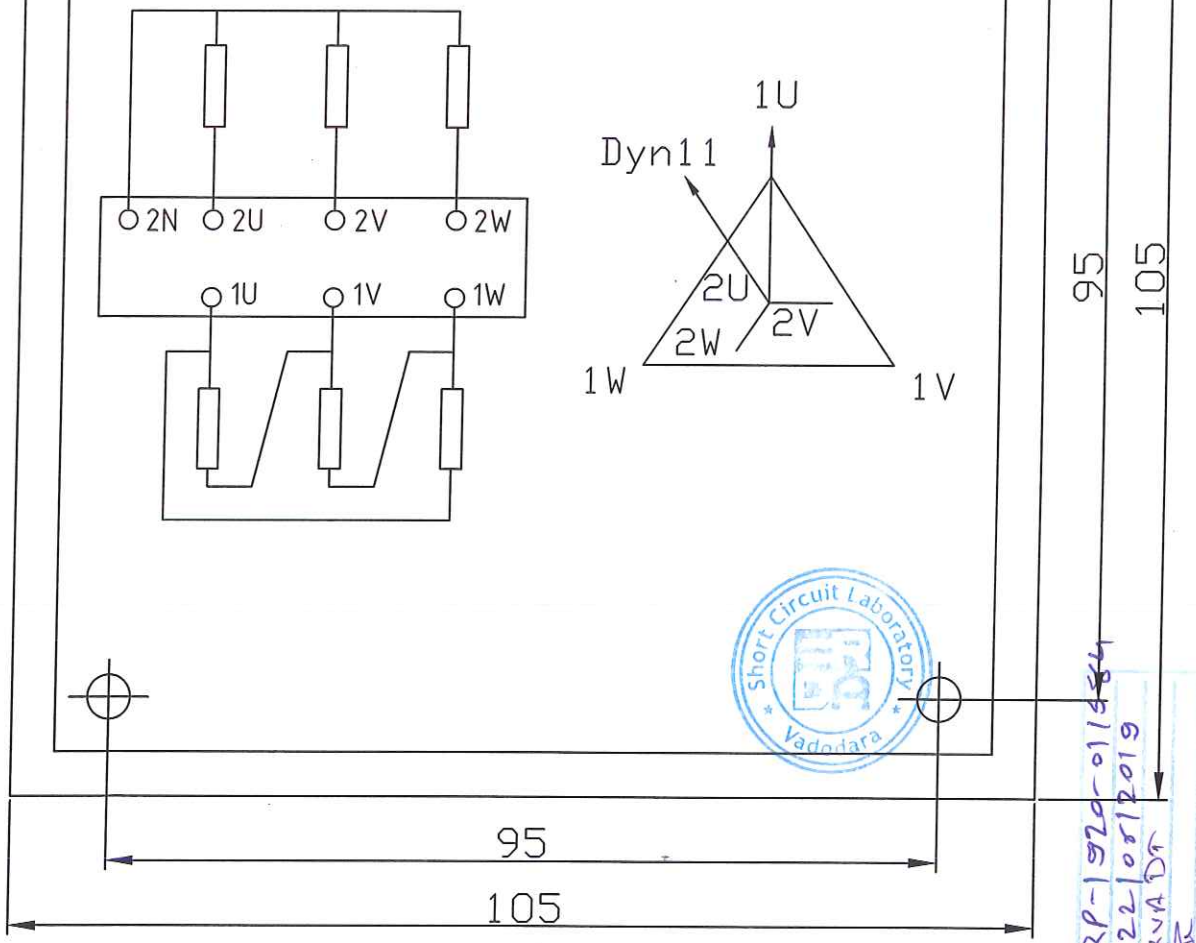
SIZE: 105x105 mm HOLE CENTER: 95x95 mm

RP-1920-011384
22/05/2019
10 KVA DT

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

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

			DRN BY	RATING & TERMINAL MARKING PLATE FOR
			CHD BY	10 KVA, 11/0.433 KV DISTRIBUTION TRANSFORMER
	30.05.2019	01 of 02	APPD BY	
REV. NO.	DATE SIGN	BRIEF DESCRIPTION		DRG. NO. RPTPL–10KVA–RP–01/02–2019



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

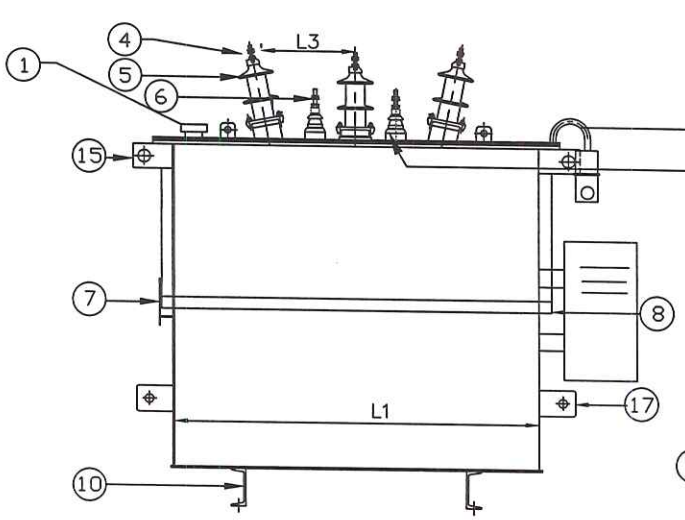
REV. NO.	DATE SIGN	BRIEF DESCRIPTION
	30.05.2019	02 of 02

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

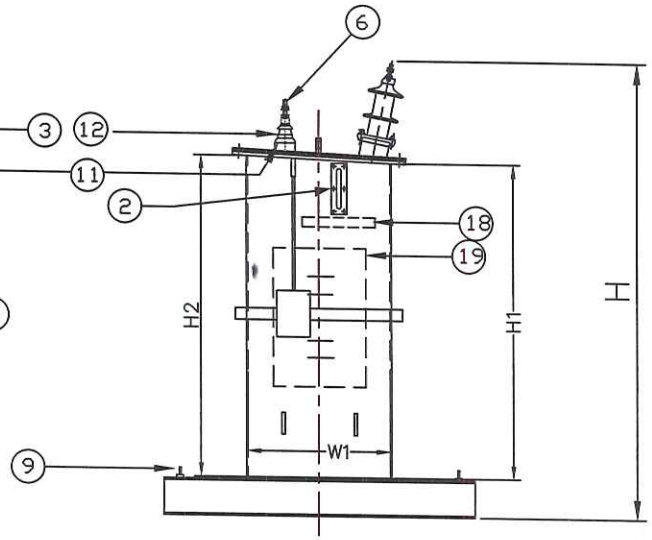
DRN BY	
CHD BY	
APPD BY	

RATING & TERMINAL MARKING PLATE FOR
10 KVA, 11/0.433 KV DISTRIBUTION TRANSFORMER

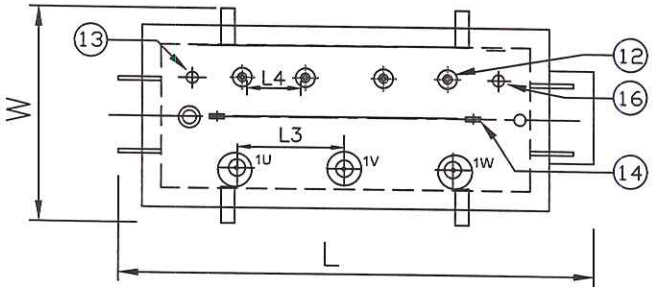
DRG. NO. RPTPL–10KVA–RP–02/02–2019



ELEVATION



SIDE VIEW



PLAN

SR.NO.	ACCESSORIES	QTY.	TECHNICAL DETAILS AS PER SPEC.	AS PER OFFER
1	OIL FILLING CAP	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	ANODIZED ALU	ANODIZED ALU
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	METALLIC TIN PLATE	1	S.S.	S.S.
* 19	MCCB BOX	1	-	-

	COOLING DETAILS	
1	TOTAL SURFACE AREA :-.	
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.		3	DIMENSIONS IN m.m.	
	CORE (+/- 5% TOL.)	54		TRANSFORMER OVERALL (+/- 10% TOL.)	
	WINDINGS (+/- 5% TOL.)	36		L =	935
	TANK & FITTINGS (+/- 5% TOL.)	109		W =	460
	OIL (+/- 5% TOL.)	63		H =	1120
	TOTAL WEIGHT (+/- 10% TOL.)	262		TRANSFORMER TANK (+/- 5% TOL.)	
2	THICKNESS IN m.m.			L1 =	695
	TANK SIDE PLATES (MIN.)	3.15		W1 =	270
	TOP & BOTTOM PLATES (MIN.)	5		H1/H2 =	575/585
			4	BUSHING CLEARANCES WITH ANGLE	
				L3 (H.V.) 255	PHASE TO PHASE
				L4 (L.V.) 75	PHASE TO PHASE
				L5 (H.V.) 205	PHASE TO EARTH
				L6 (L.V.) 55	PHASE TO EARTH

RP-1920011584
22/08/2019
10 KVA DT

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
10 KVA 11/0.433 KV DIST. TRANSFORMER

DRG.NO.: RPTPL–GA–10KVA–02–2019

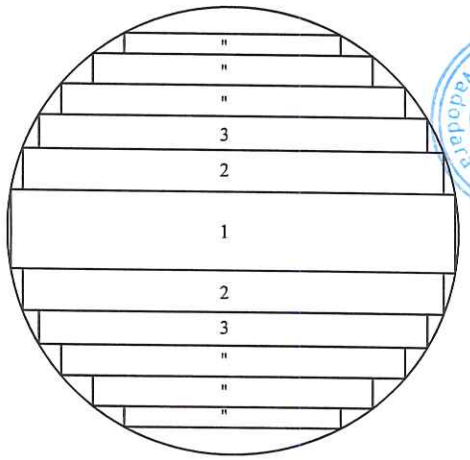
DATE: 30.05.2019

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)	10	10
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)		5
10	% IMPEDENCE	4.5	4.5
11	CORE DIMENSIONS		

STEP NO.	1	2	3	4	5	6	7	8	9
L MM	70	60	50	40	30	-	-	-	-
W MM	24	2 X9.6	2X5.6	2X3.8	2X2.7	-	-	-	-
GROSS SECTION cm²	16.80	11.52	5.60	3.04	1.62	-	-	-	-

TOTAL GROSS SECTION AREA cm² = 38.58 cm²

EFFECTIVE CORE AREA - 387.58 x 0.97 = 37.42 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×mm			0.76DIA	3 x 7
	d) CONDUCTOR GROSS SECTION mm2			0.453	20.45
	e) INSULATION MATERIAL			S.E	D.P.C.
	f) CURRENT DENSITY A/mm2		1.3 WITH ±5% TOLERANCE	0.66	0.65
	g) NO OF TURNS PER COIL			2376	216
	h) OUTER DIA. mm			205	112
	i) INSIDE DIA. mm			144	80
	j) AXIAL LENGTH mm.			61.75 each	270
	k) NO OF COILS PER PHASE			4	1
13	BUSHING	AS SPECIFIED		AS PER OFFERED	
	MINIMUM CREEPACE DISTANCE				
14	LOSSES				
	MAXIMUM TOTAL LOSSES @ 50%	84 W		84 W	
	MAXIMUM TOTAL LOSSES @ 100%	240 W		240 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..).			63	
	IN TANK (IN LTRs.)			75	
	IN CONSERVATOR (IN LTRs.)			-	
	TOTAL (IN LTRs.)			75	
17	BREATHER			ANY MAKE APPR BY CO.	
	CAPACITY	500 gms.		500 gms.	
18	RADIATOR				
	MAKE			ANY MAKE APPR BY CO.	
	DETAILD HEAT DISSIPATION CALCULATIONS.	TO BE ENCLOSED		TO BE ENCLOSED	

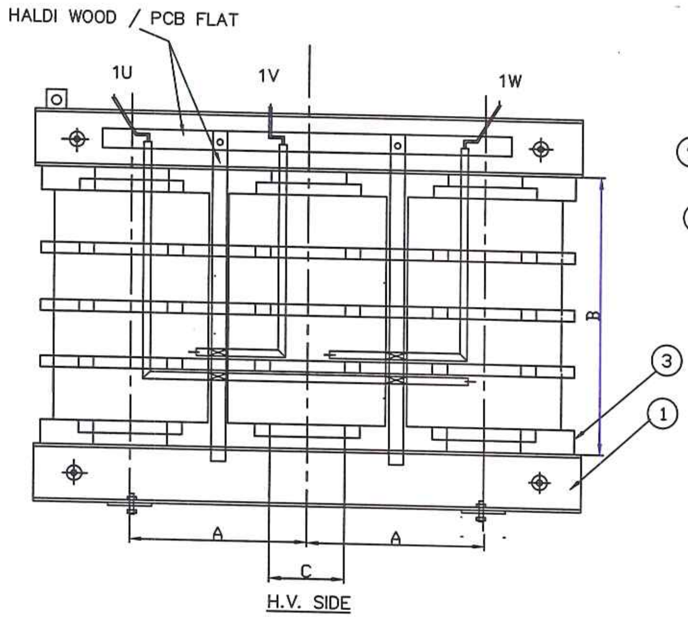
Short Circuit Laboratory * Vadodara *

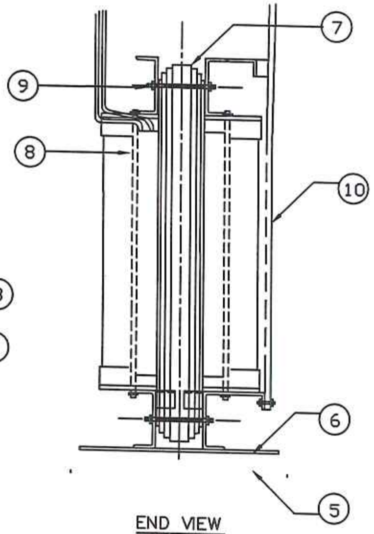
Test Report No. RP1920-011584
Date 22/10/2019
Product 10 KVA DT
Verified by

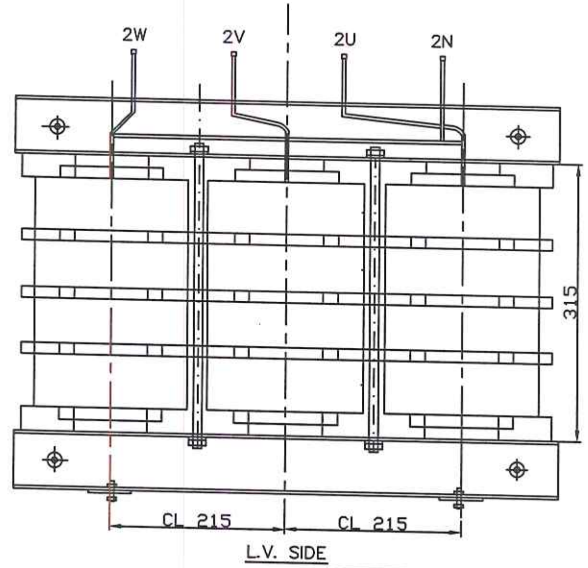
RAJASTHAN POWERGEN TRANSFORMER PVT. LTD.
KAROLA–BHINMAL ROAD KAROLA SANCHORE–343041

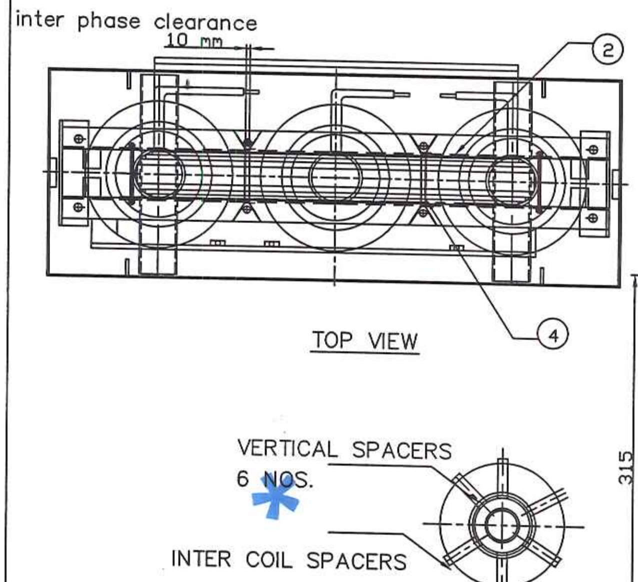
TECHNICAL DETAIL DRAWING
10 KVA 11/0.433 KV DIST. TRANSFORMER

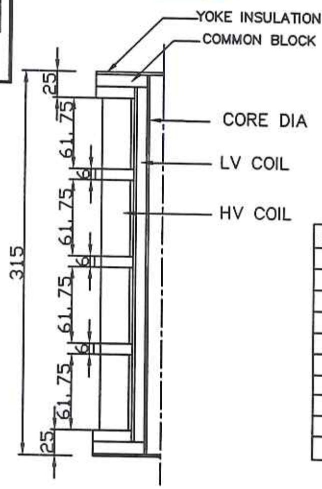
DRG.NO.: RPTPL–TD–10KVA–03–2019
DATE: 30.05.2019











Test Report No. RP-1920-011584
Date 22/08/2019
Product 10 KVA DT
Verified by
Verification of this drawing by ERDA is limited to relevant dimensional checks...

	DESCRIPTION	AS PER OFFER
CORE		
A	LEG CENTER mm	215
B	WINDOW HEIGHT mm	315
C	CORE CIRCLE mm	73
	NO OF STEPS	5
	EFFECTIVE CORE AREA cm^2	37.42
L.V. COIL		
	NO OF COIL PER PHASE	1
	OUTER DIA mm	122
	INSIDE DIA mm	80
	AXIAL LENGTH mm	270
	CONDUCTOR CROSS SECTION mm^2	20.45
	CONDUCTOR INSULATION	DPC
H.V. COIL		
	NO OF COIL PER PHASE	4
	OUTER DIA mm	205
	INSIDE DIA mm	144
	AXIAL LENGTH mm	61.75 EACH
	CONDUCTOR CROSS SECTION mm^2	0.45

INSULATION BETWEEN	AS PER SPEC	AS PER OFFER
CORE & L.V.	3.5	3.5
L.V. & H.V.	MIN 11	MIN 11
END INSULATION	25	25
H.V. WINDING AND TANK	30	30
H.V. PHASE TO PHASE	10	10

SR.NO.	DESCRIPTION	MATERIAL & SIZE	QTY.
.	.	.	.
9	CORE STUDS .	M S ROD– 12 mm ø	4
8	TIE RODS	M S ROD– 12 mm ø	4
7	CORE CONSTRUCTION	C.R.G.O.	–
6	FOOT PLATE INSULATION	PRESS BOARD– 2 mm	2
5	FOOT PLATE	M S FLAT– 50x10	2
4	PHASE BARRIER	PRESS BOARD 1 mm x2	2
3	YOKE INSULATION	PRESS BOARD– 2 mm	2
2	CORE CLAMP INSULATION	PRESS BOARD– 2 mm	2
1	CORE CLAMPS	M S CHANNEL– 75x40	4

NOTE: ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED

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

INTERNAL ARRANGEMENT DRAWING
10 KVA 11/0. 433 KV DIST. TRANSFORMER

DRG.NO.: RPTPL–IA–10KVA–04–2019
DATE: 30.05.2019