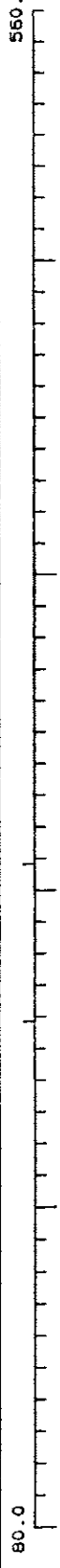


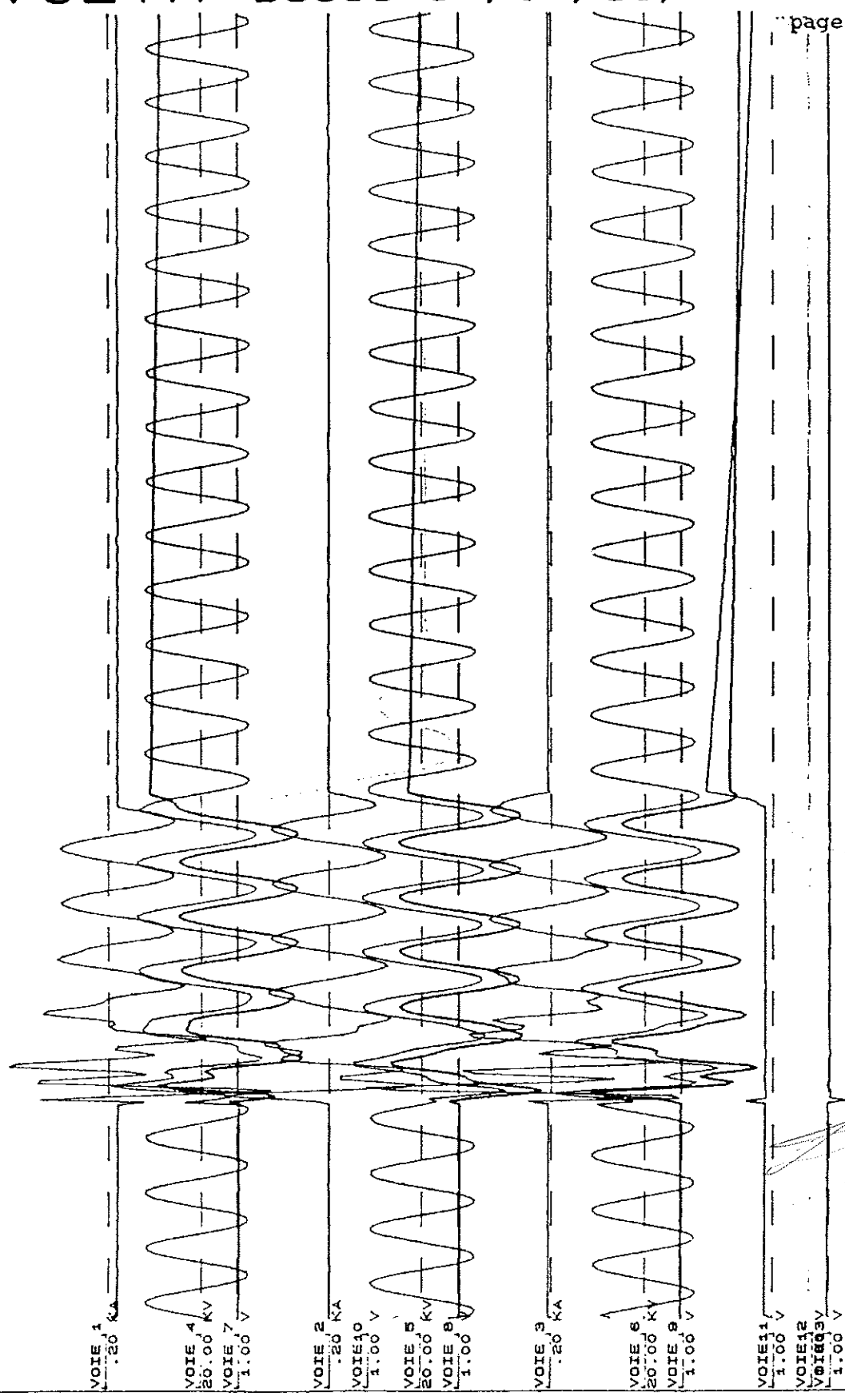
Handwritten mark resembling a lightning bolt or stylized 'S'.

# VOLTA B3665 94/04/15/086

560.0



10 ms



VOIE 1  
20.00 kV  
1.00 V

VOIE 4  
20.00 kV  
1.00 V

VOIE 2  
20.00 kV  
1.00 V

VOIE 10  
20.00 kV  
1.00 V

VOIE 5  
20.00 kV  
1.00 V

VOIE 8  
20.00 kV  
1.00 V

VOIE 3  
20.00 kV  
1.00 V

VOIE 6  
20.00 kV  
1.00 V

VOIE 9  
20.00 kV  
1.00 V

VOIE 11  
20.00 kV  
1.00 V

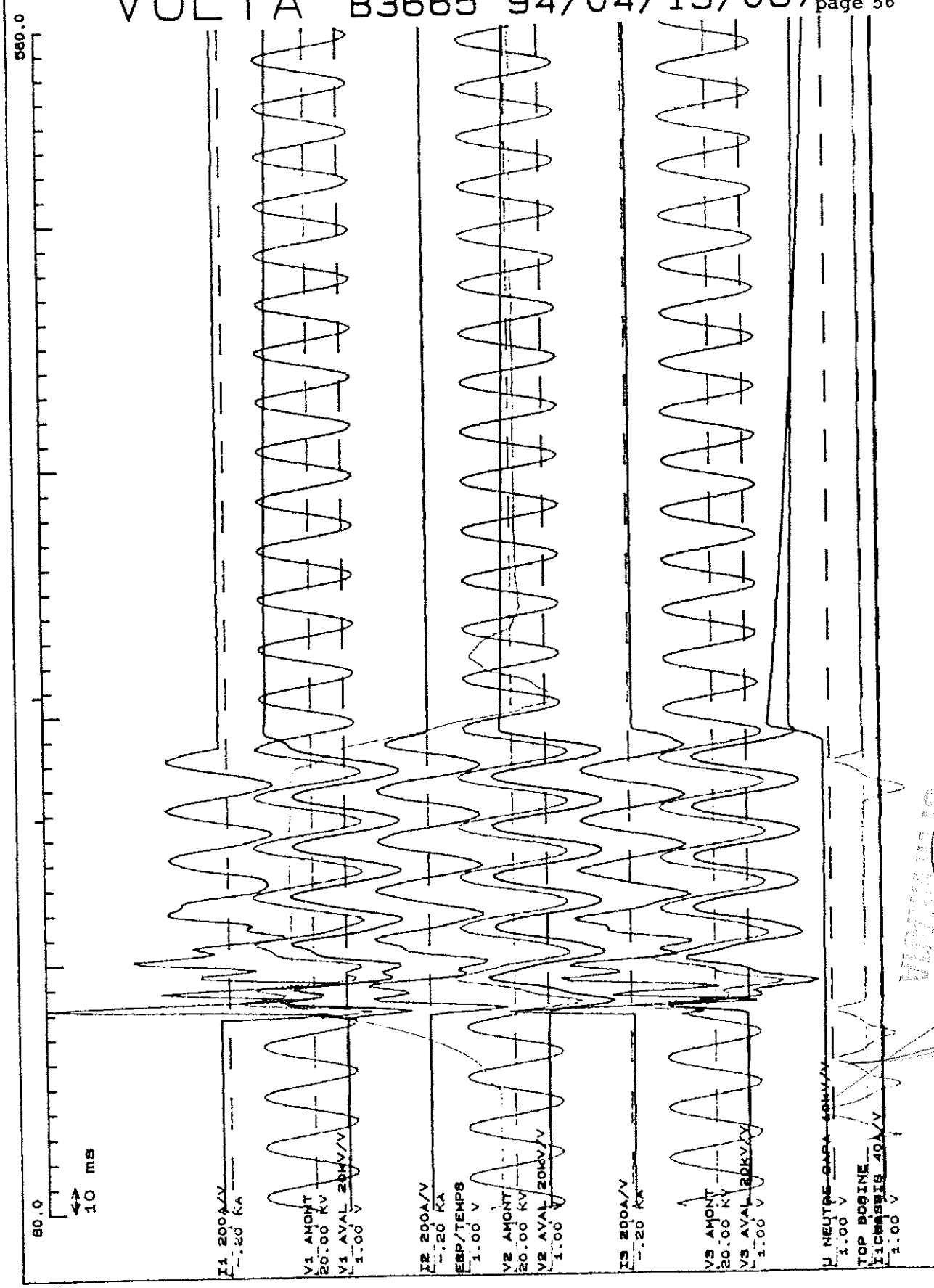
VOIE 12  
20.00 kV  
1.00 V

VOIE 13  
20.00 kV  
1.00 V

REPRODUCTION  
D'UN DOCUMENT  
OFFICIEL

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1449



PROTECTOR  
C. J. J. J.

1450

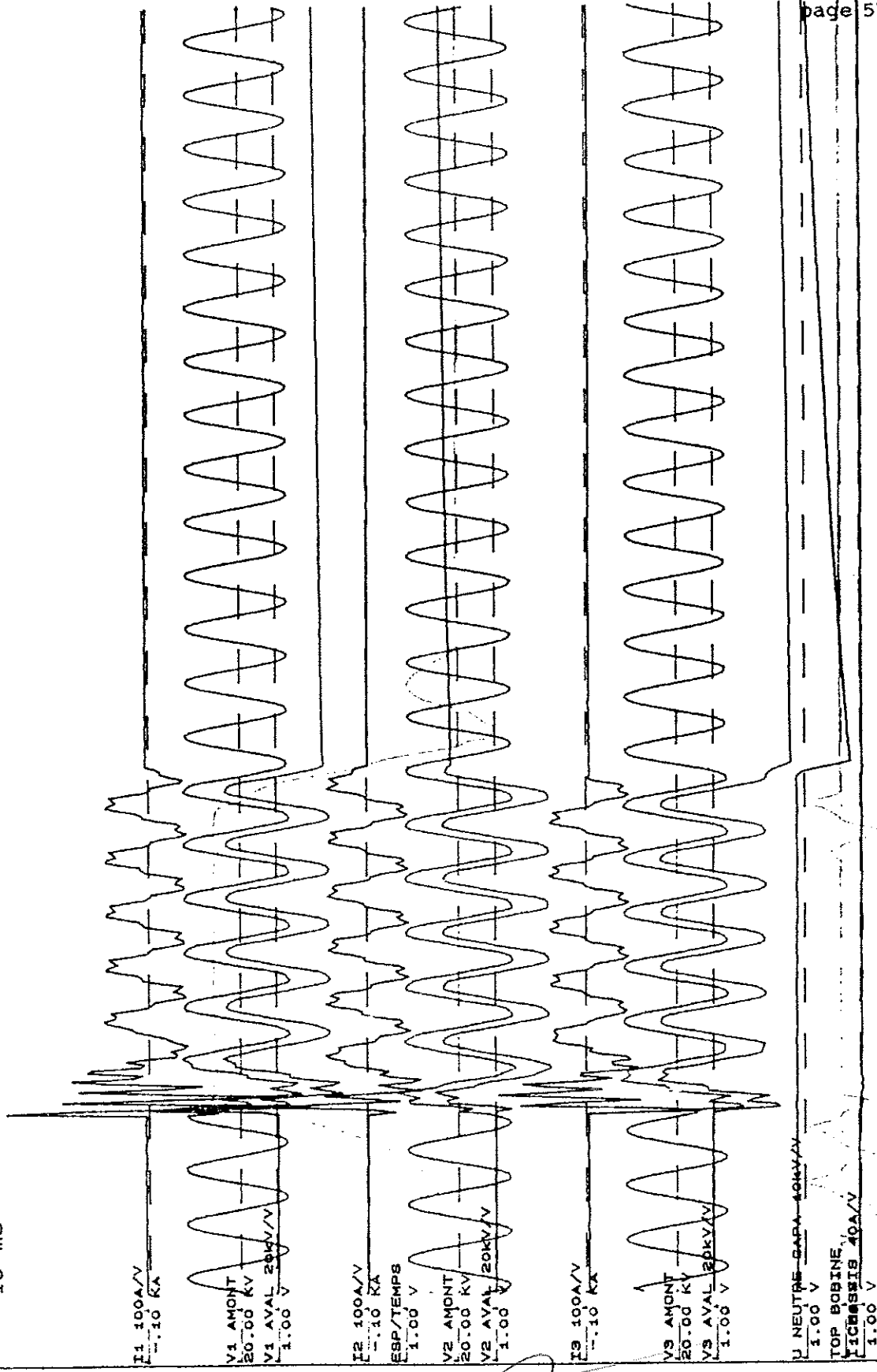
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# VOLTA B3665 94/04/18/091

560.0

80.0

10 ms



I1 100A/V  
1.10 KA

V1 AMONT  
20.00 KV  
V1 AVAL 20KV/V  
1.00 V

I2 100A/V  
1.10 KA  
ESP/TEMPS  
1.00 V

V2 AMONT  
20.00 KV  
V2 AVAL 20KV/V  
1.00 V

I3 100A/V  
1.10 KA

V3 AMONT  
20.00 KV  
V3 AVAL 20KV/V  
1.00 V

J NEUTRE - GARA - 10KV/V  
1.00 V  
TOP BOBINE,  
TICSSSIS 40A/V  
1.00 V

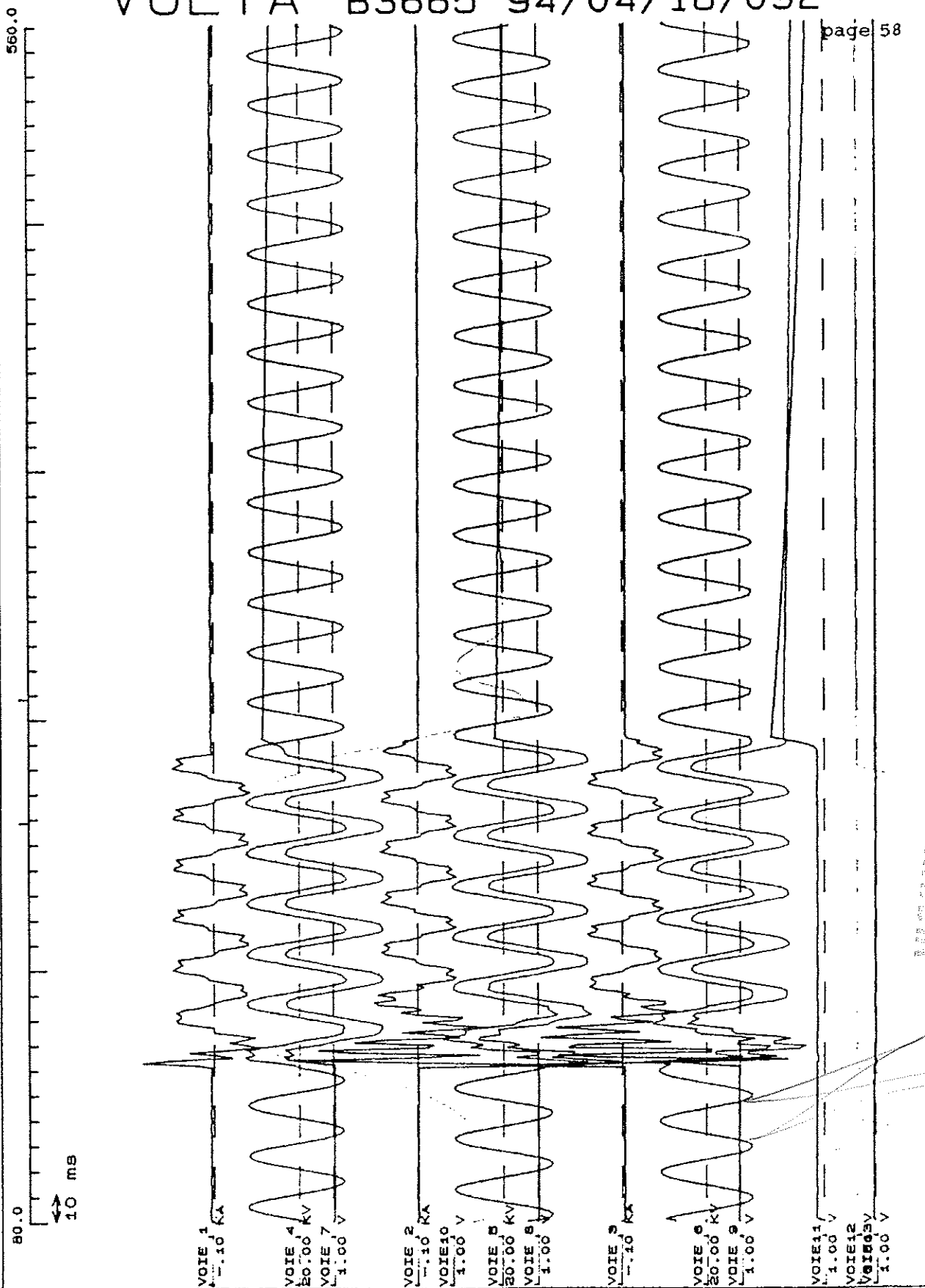
WITTENBERG  
Oscar  
1994

1451

Large handwritten signature or scribble at the bottom of the page.

*[Handwritten mark]*

# VOLTA B3665 94/04/18/092



BRUNO  
OPERAIA

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23

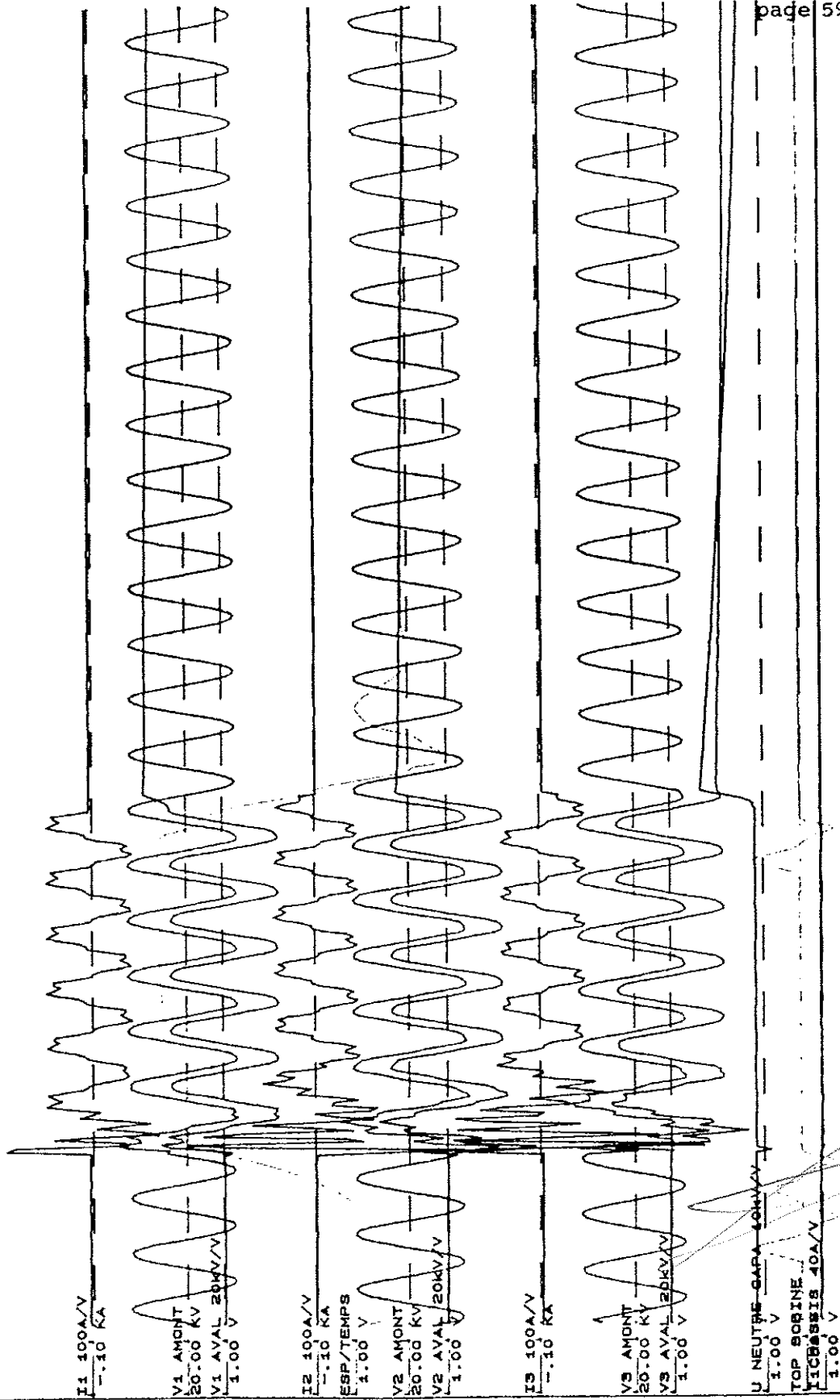
# VOLTA B3665 94/04/18/093

page 59

560.0

80.0

10 ms



15/04/2000

Signature

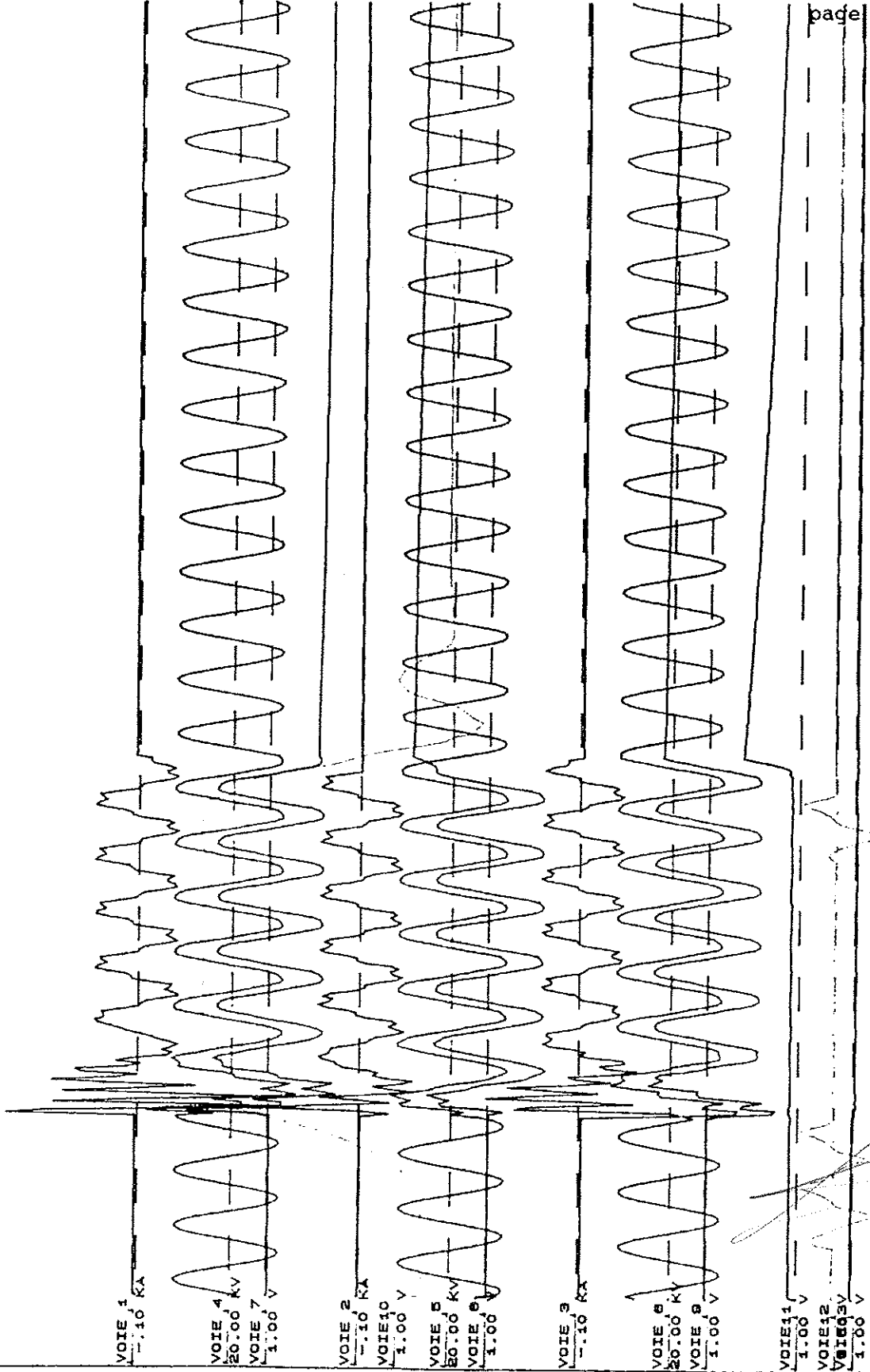
1453

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# VOLTA B3665 94/04/18/094

page 60

80.0  
10 MB  
560.0

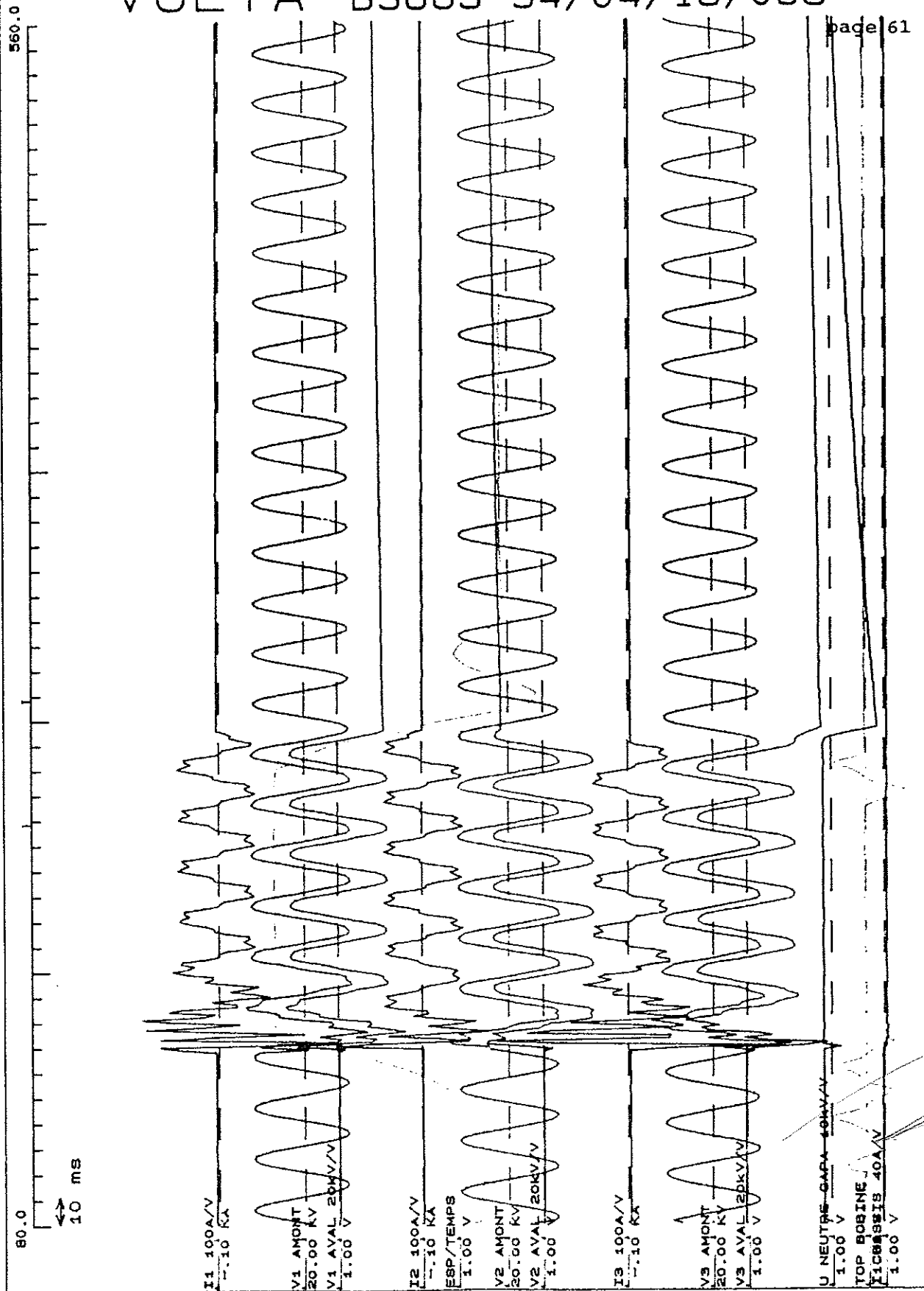


ВРЕМЯ С  
ОПЕРАЦИЯ

Handwritten signature or scribble.

1454

# VOLTA B3665 94/04/18/095



PERRO C  
OPERA

1455

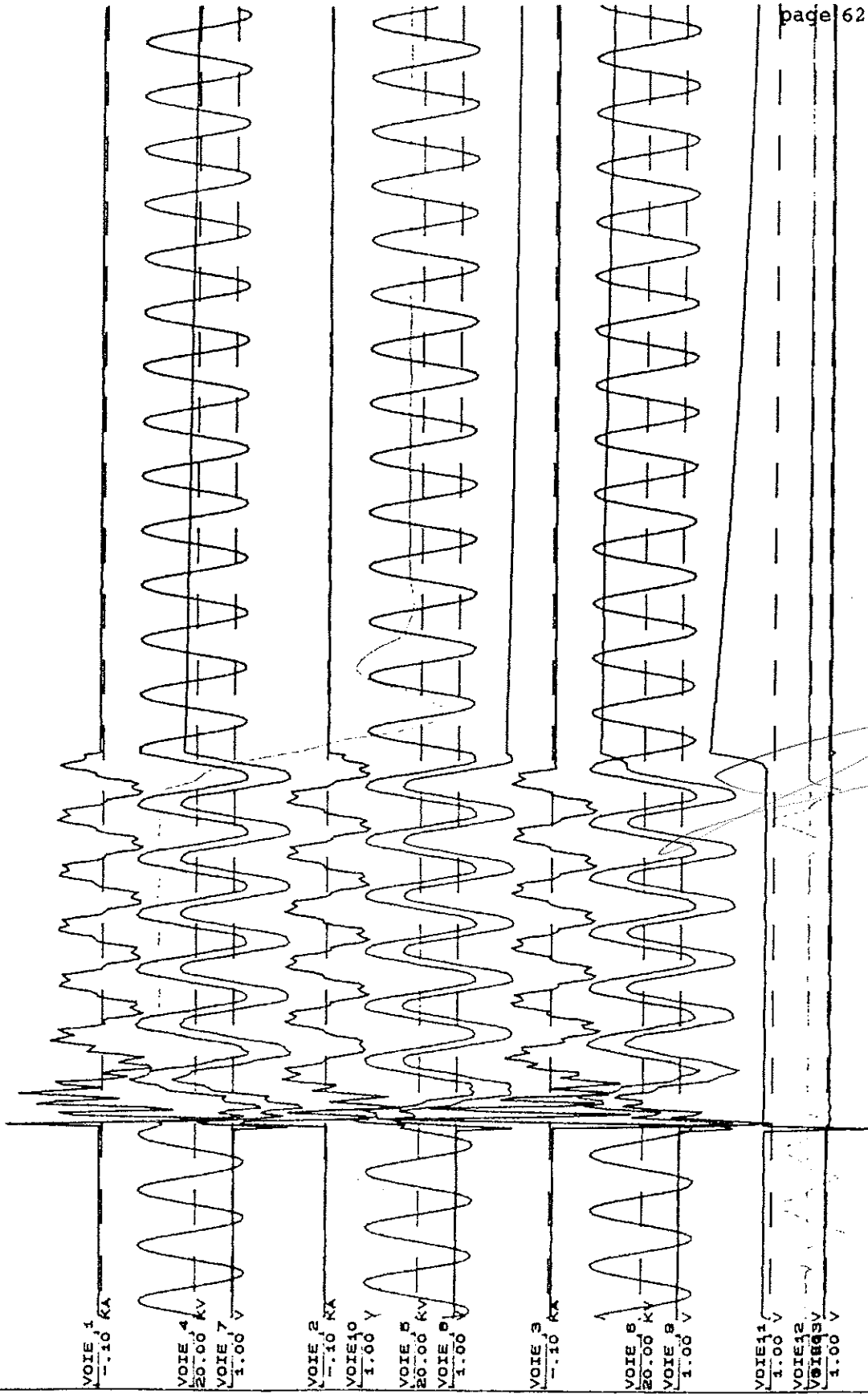
8

20

# VOLTA B3665 94/04/18/099

page 62

80.0  
10 ms  
560.0



ВЕРНОЕ  
ОБЪЯВЛЕНИЕ

8

1456

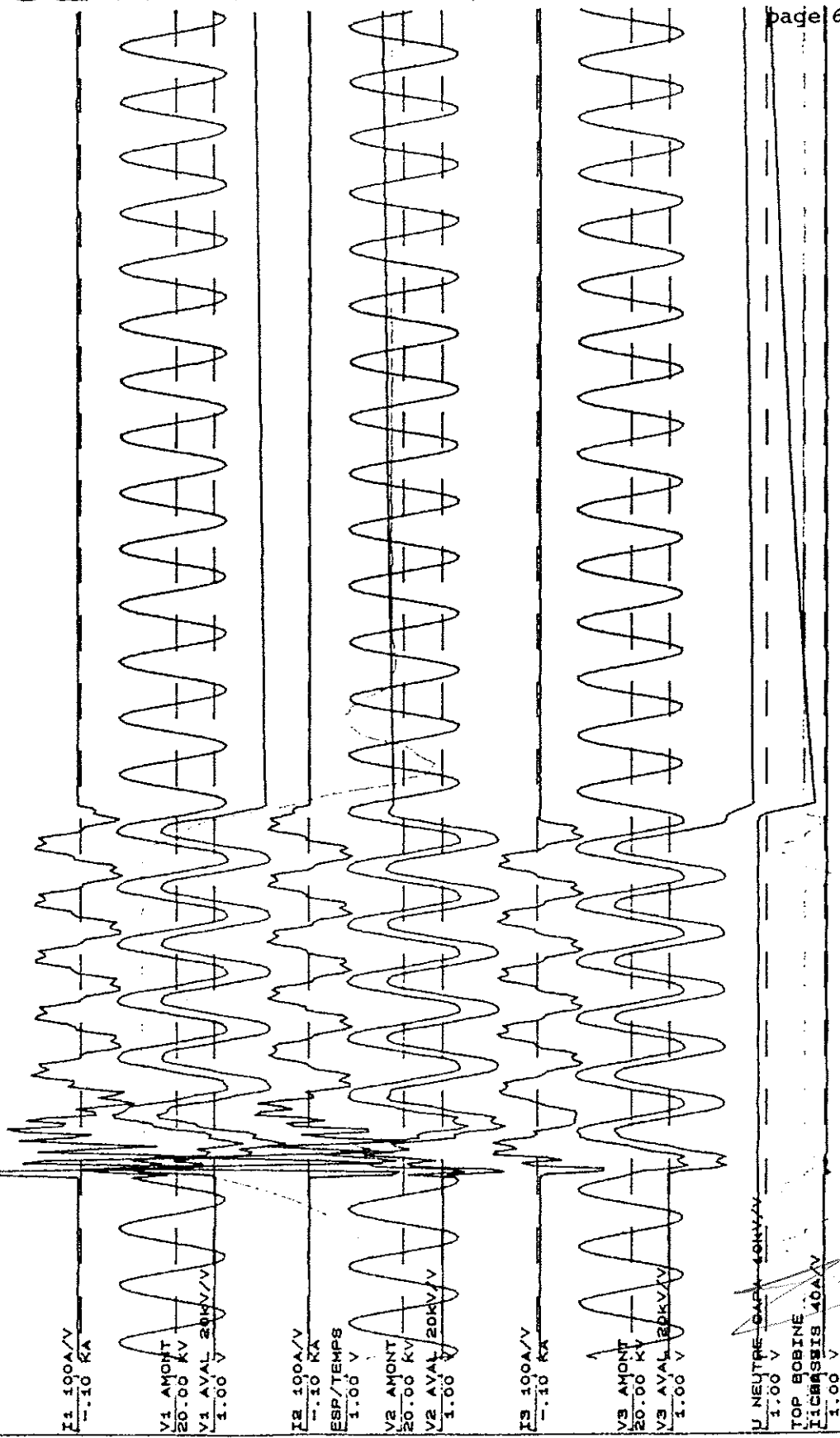


# VOLTA B3665 94/04/18/096

560.0

80.0

10 ms



I1 100A/V  
-10 KA

V1 AMONT  
20.00 KV  
V1 AVAL 20KV/V  
1.00 V

I2 100A/V  
-10 KA  
ESP/TEMPS  
1.00 V

V2 AMONT  
20.00 KV  
V2 AVAL 20KV/V  
1.00 V

I3 100A/V  
-10 KA

V3 AMONT  
20.00 KV  
V3 AVAL 20KV/V  
1.00 V

U NEUTRE CAPA 40KV/V  
1.00 V

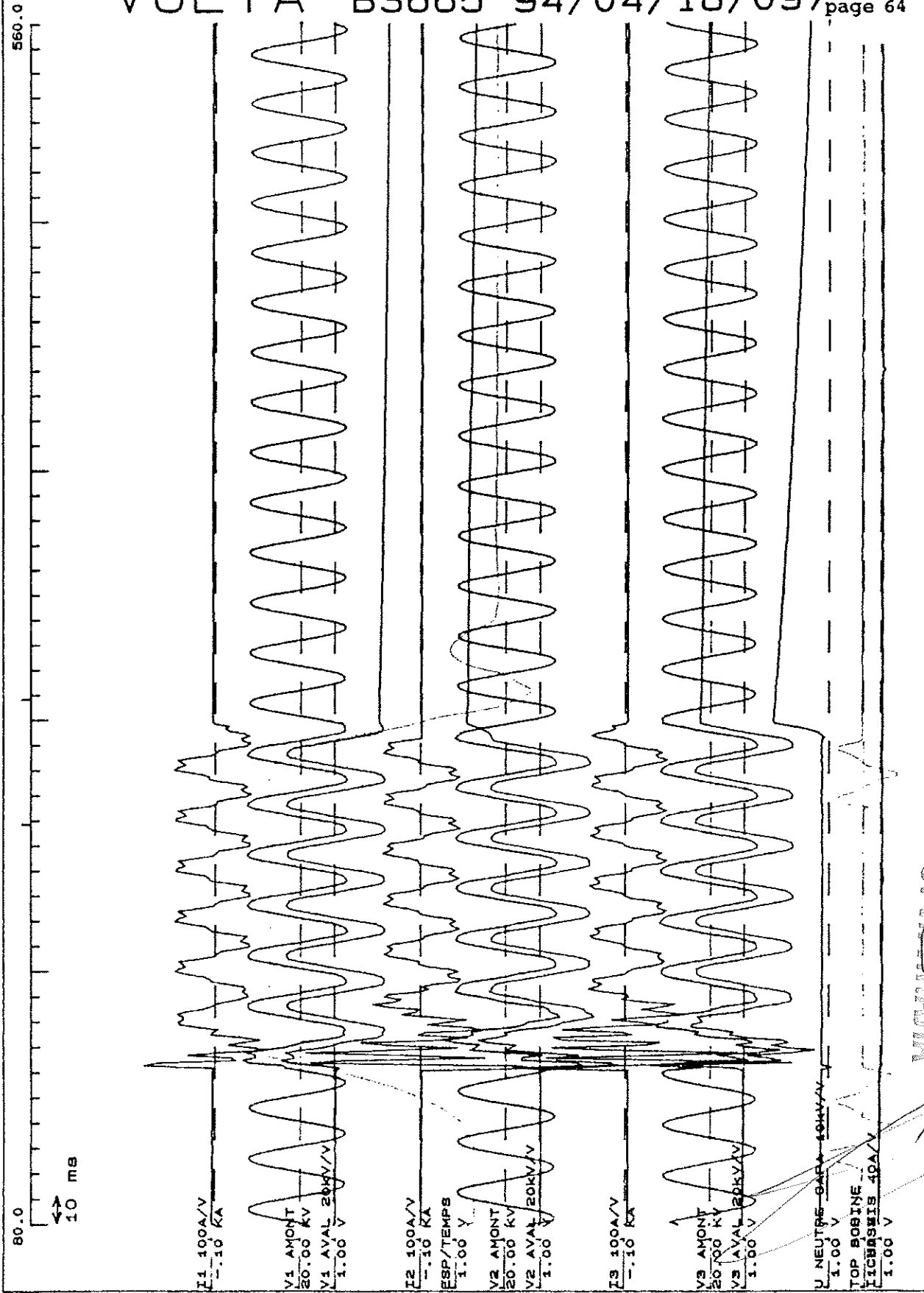
TOP BOBINE  
TICRSEBIS 40KV  
1.00 V

WINDING  
OPERA  
BROU  
C  
0 01258

1457

*[Handwritten signature]*

# VOLTA B3665 94/04/18/097 page 64

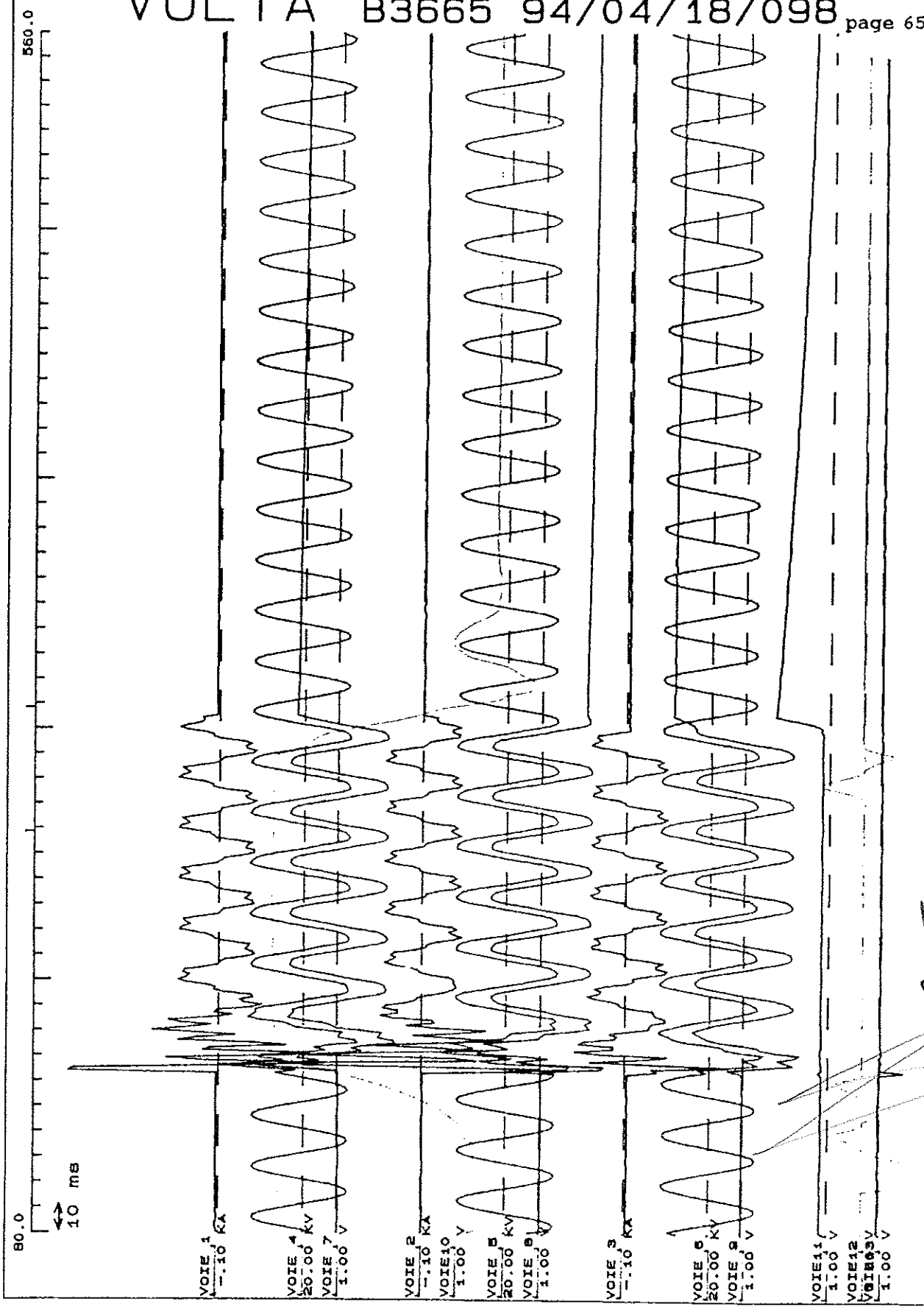


BRNO C  
OFFICINA

*[Handwritten signature]*

1458

*Handwritten mark*



BRUNO C  
OPM/MAID

*Handwritten signature*

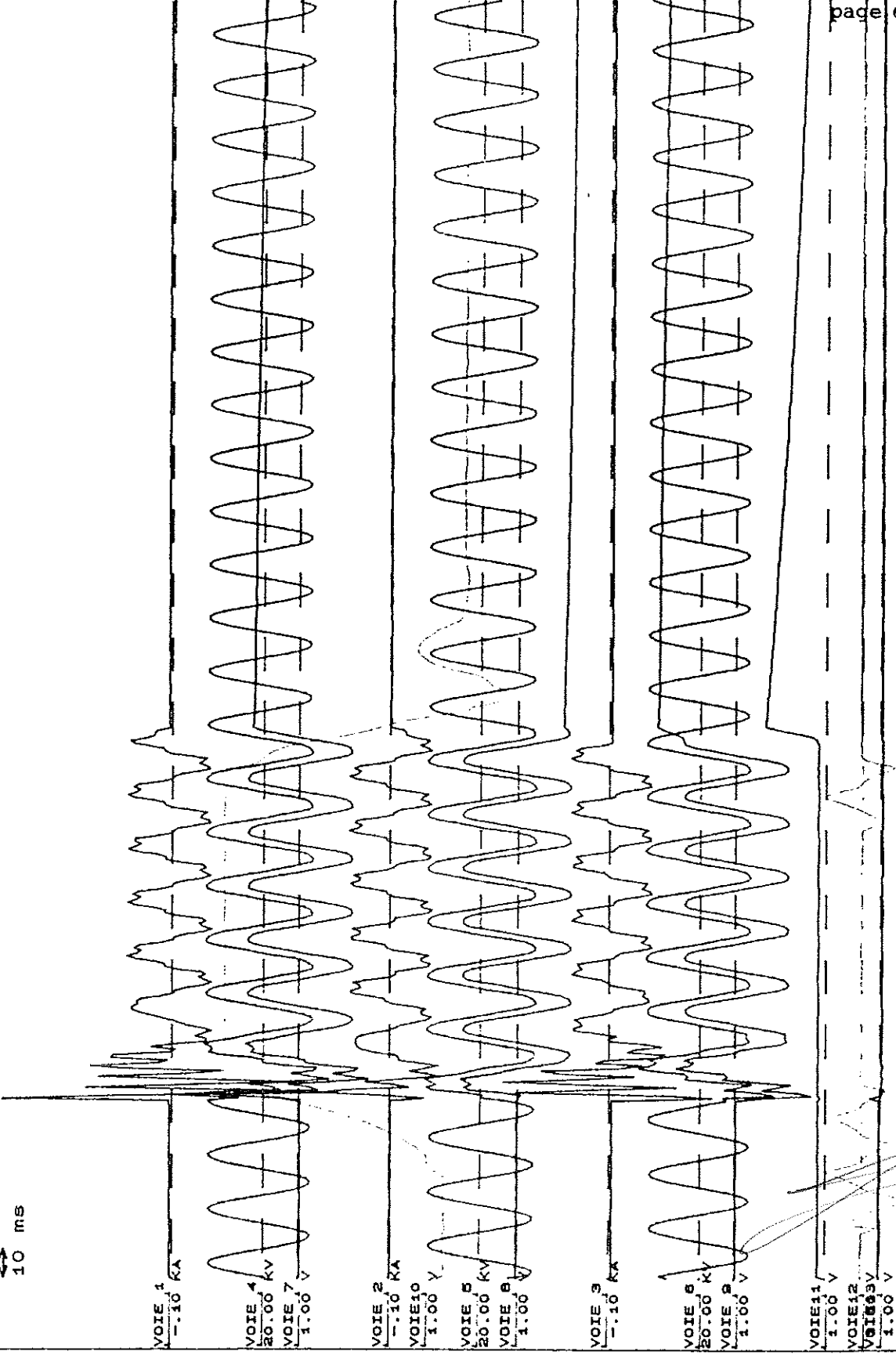
1459

VOLTA B3665 94/04/18/100

560.0

80.0

10 ms



VOIE 1  
-10 KA

VOIE 4  
20.00 KV  
VOIE 7  
1.00 V

VOIE 2  
-10 KA  
VOIE 10  
1.00 V

VOIE 5  
20.00 KV  
VOIE 8  
1.00 V

VOIE 3  
-10 KA

VOIE 6  
20.00 KV  
VOIE 9  
1.00 V

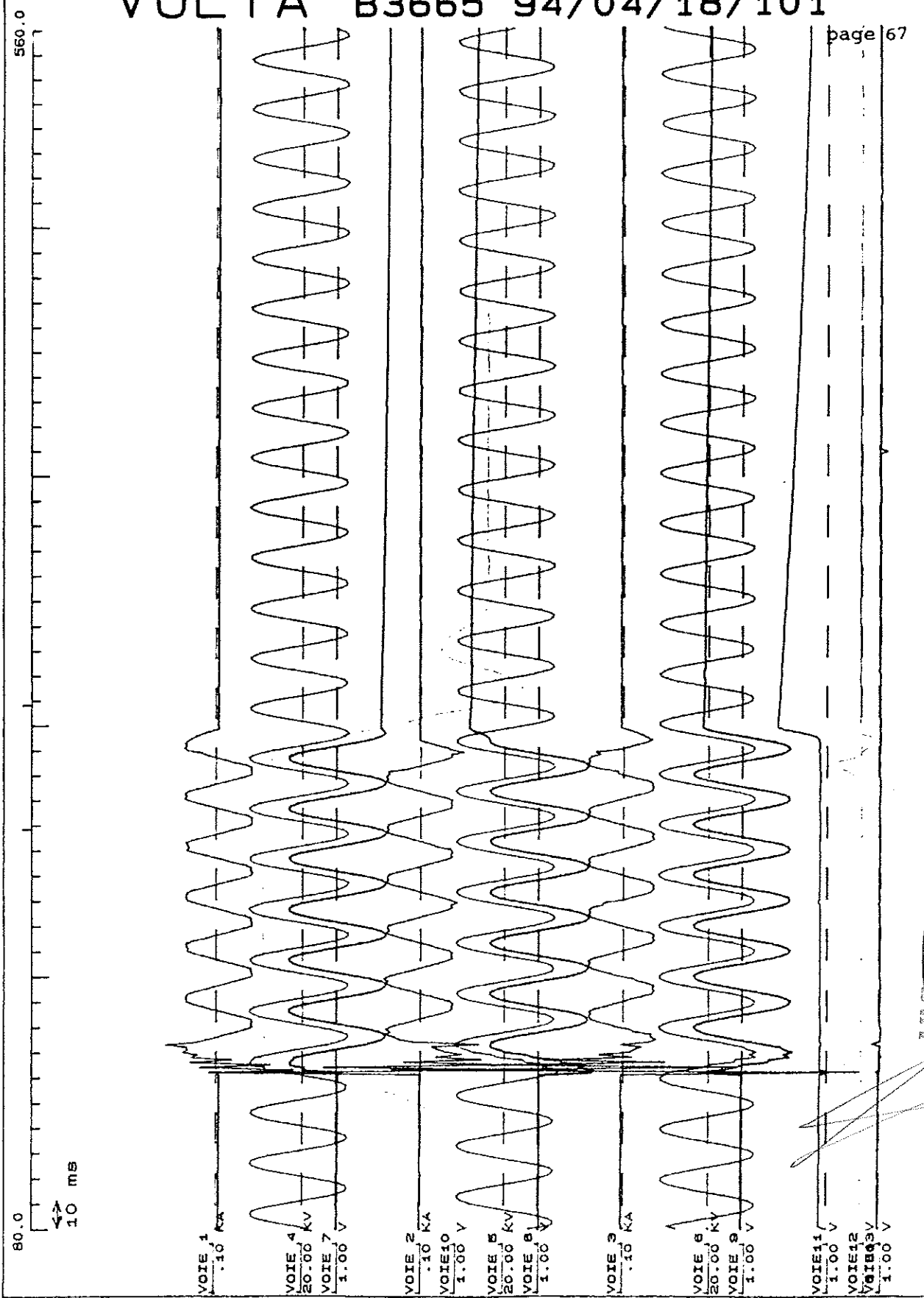
VOIE 11  
1.00 V  
VOIE 12  
VOIE 13  
1.00 V

VIMARIO  
OPERATOR

1460

2/

# VOLTA B3665 94/04/18/101

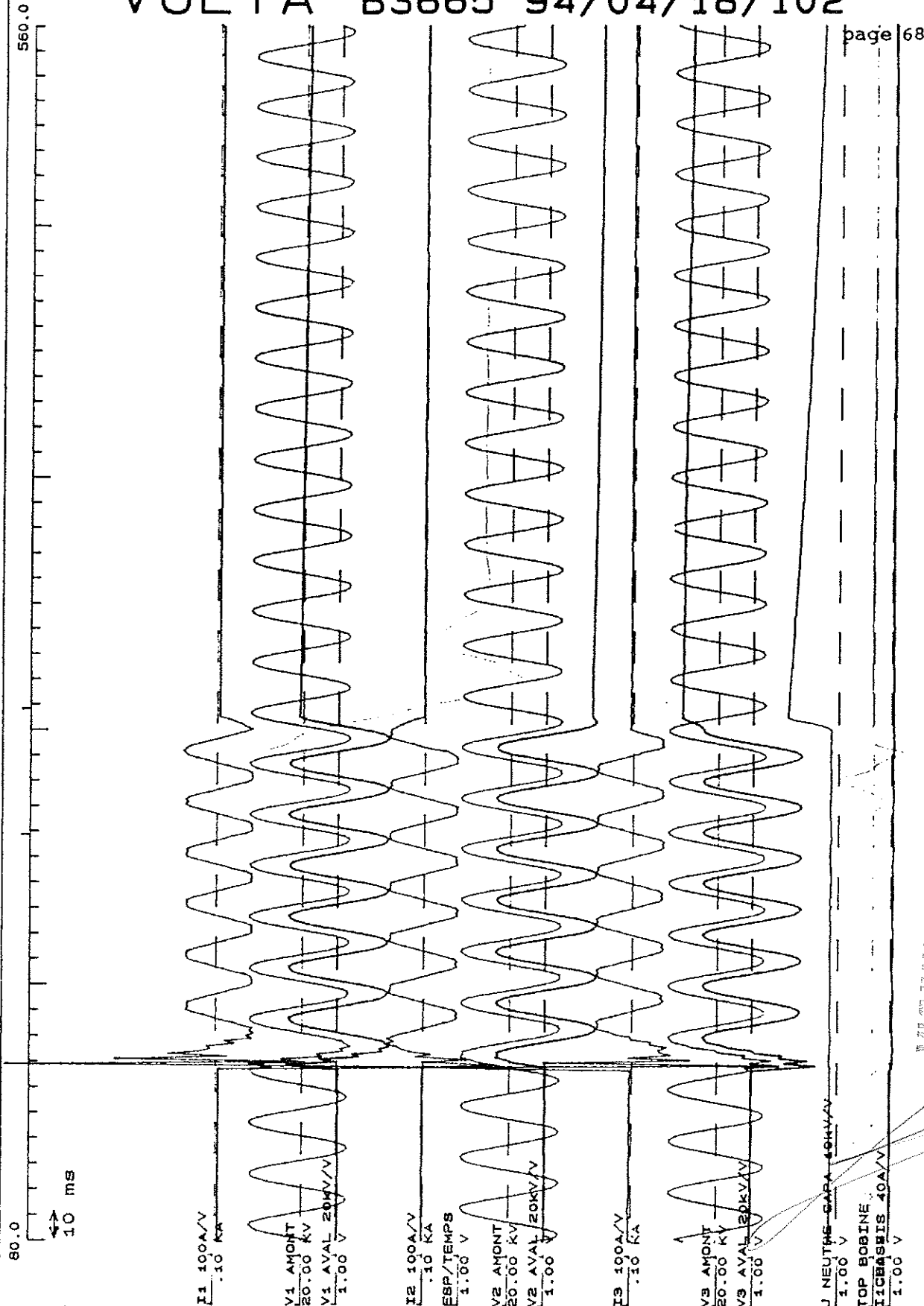


PROVINCIA  
DE  
SARDEGNA

1461

# VOLTA B3665 94/04/18/102

page 68



*Handwritten signature*  
10/01/10

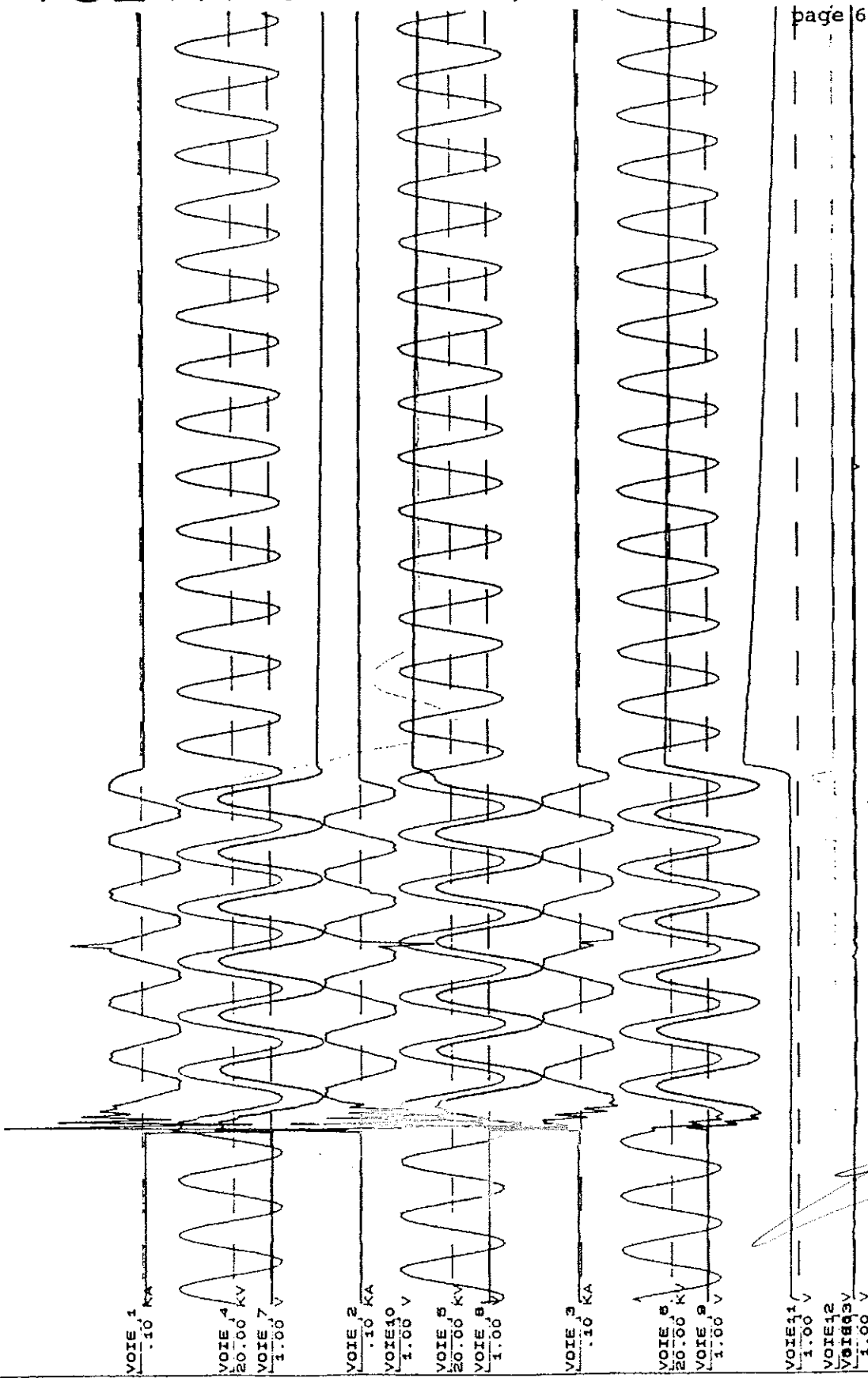
*Handwritten signature*

1462

VOLTA B3665 94/04/18/103

560.0

80.0  
10 ms



VOIE 1  
.10 KA

VOIE 4  
20.00 KV  
VOIE 7  
1.00 V

VOIE 2  
.10 KA  
VOIE 10  
1.00 V

VOIE 5  
20.00 KV  
VOIE 6  
1.00 V

VOIE 3  
.10 KA

VOIE 8  
20.00 KV  
VOIE 9  
1.00 V

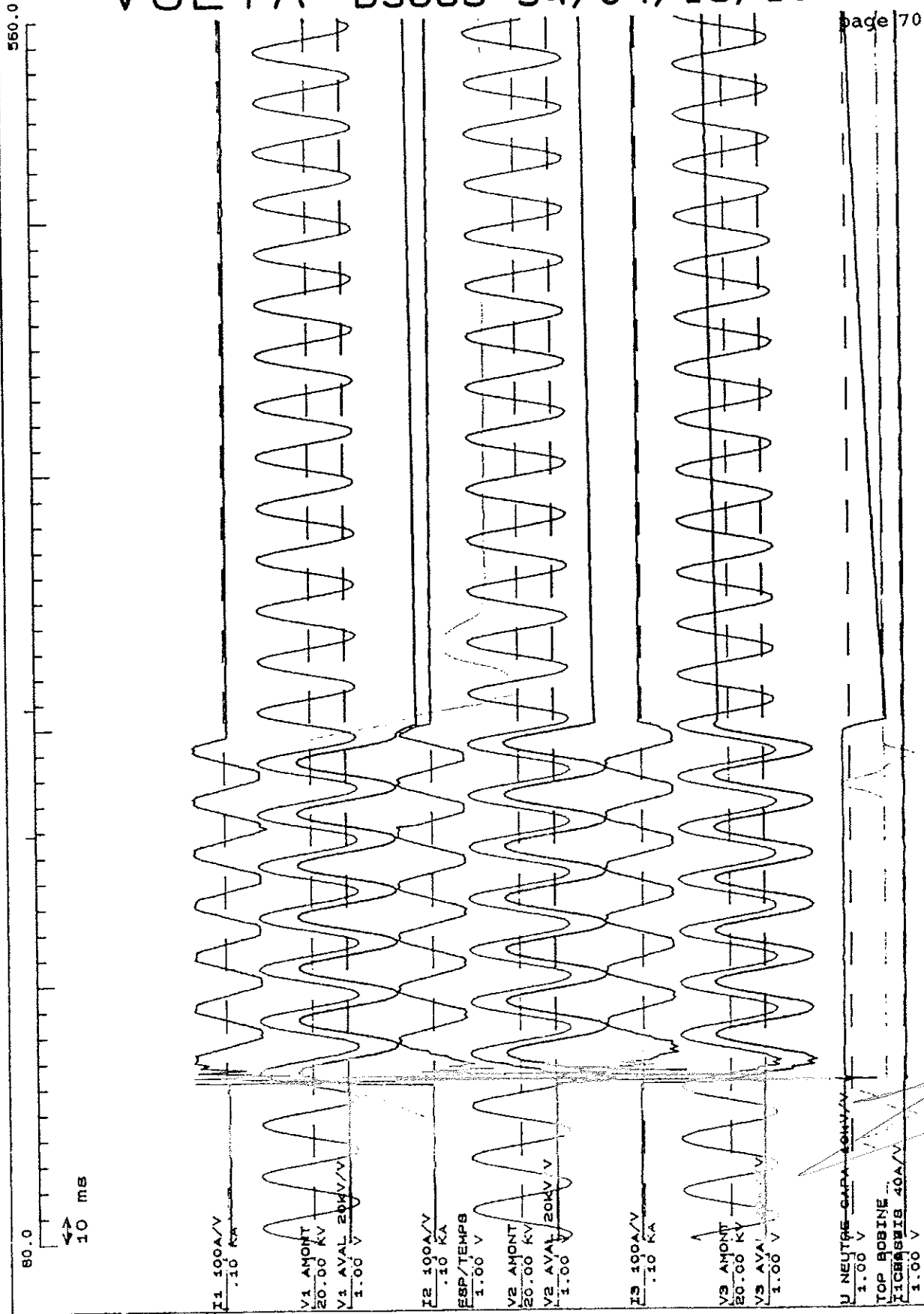
VOIE 11  
1.00 V  
VOIE 12  
VOIE 13  
1.00 V

RECEIVED  
3 APR 93

1463

Handwritten mark resembling a stylized 'd' or '2'.

# VOLTA B3665 94/04/18/104



REPRODUCTION  
INTERDITE

*[Handwritten signature]*

*[Handwritten mark]*

1464

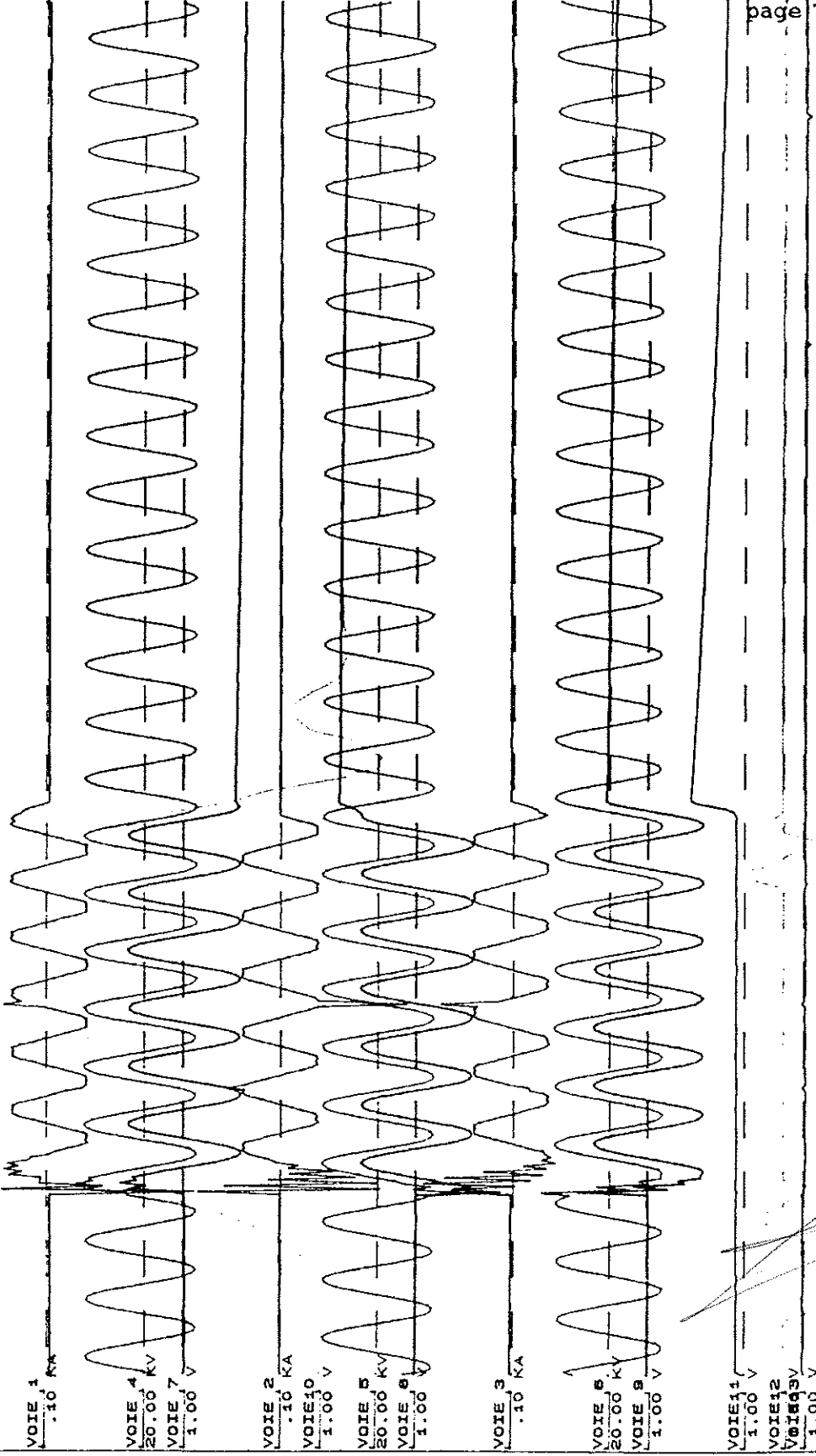


# VOLTA B3665 94/04/18/105

560.0

80.0

10 ms



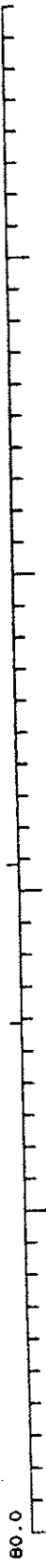
RECEIVED  
30 APR 1994

*[Handwritten signature]*

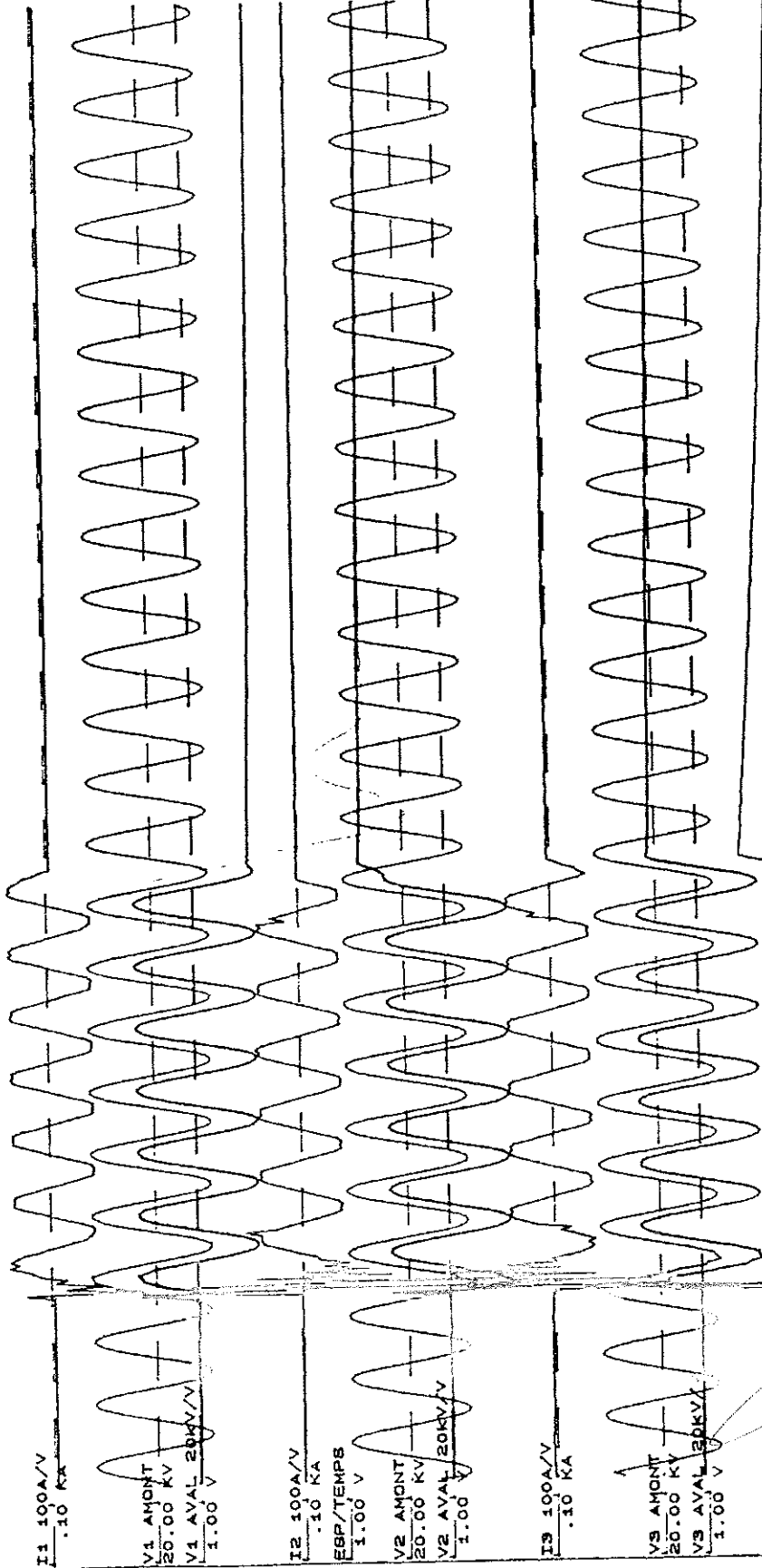
1465

# VOLTA B3665 94/04/18/106

560.0



10 ms



I1 100A/V  
.10 KA

V1 AMONT  
20.00 KV  
V1 AVAL 20KV/V  
1.00 V

I2 100A/V  
.10 KA  
ESP/TEMPS  
1.00 V

V2 AMONT  
20.00 KV  
V2 AVAL 20KV/V  
1.00 V

I3 100A/V  
.10 KA

V3 AMONT  
20.00 KV  
V3 AVAL 20KV/V  
1.00 V

U NEUTRE CAPA 10KV/V  
1.00 V

TOP BOBINE  
RICHARIS 40A/V  
1.00 V

VIVIANE  
0 01/18/94

1466

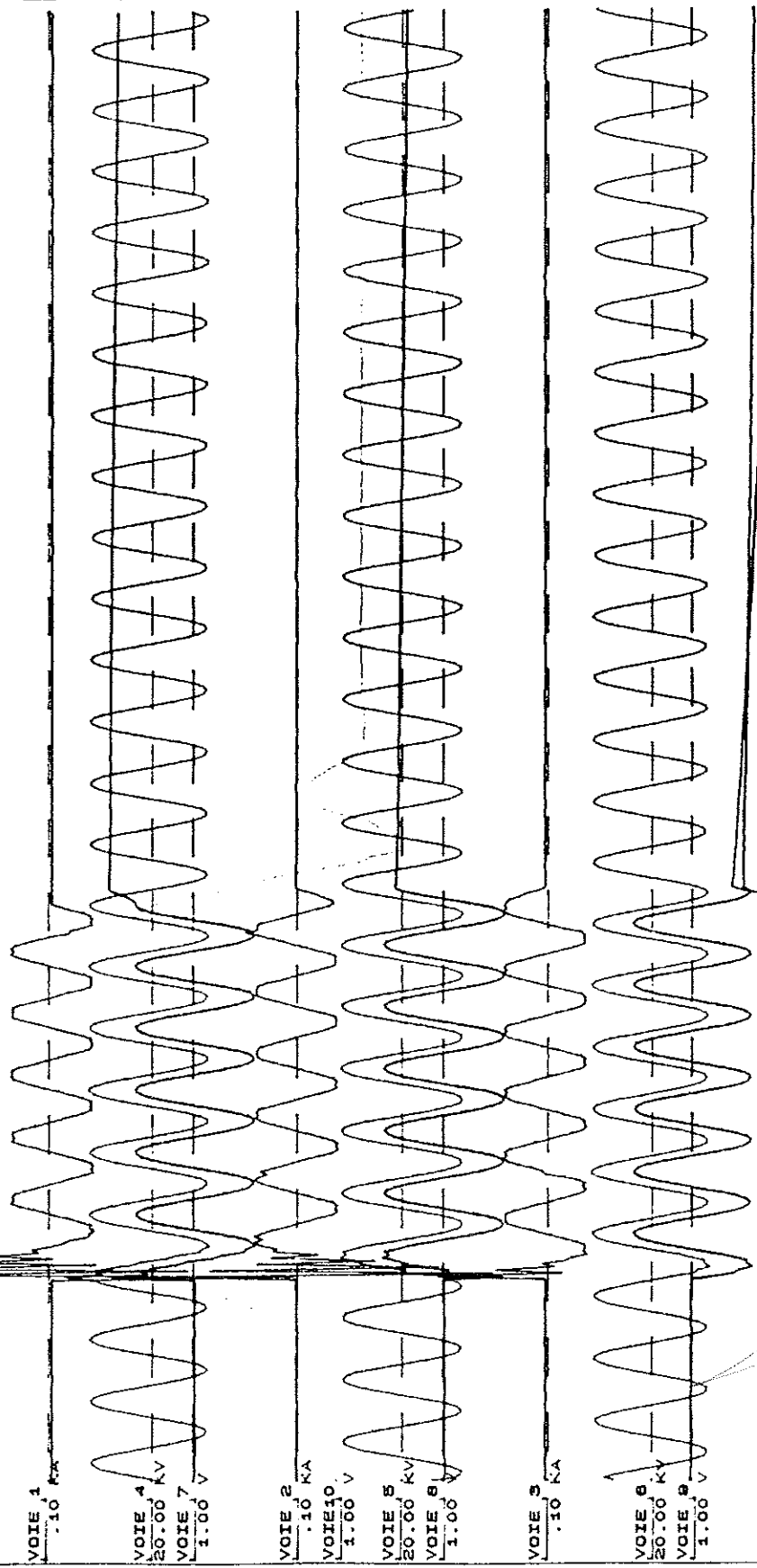
31

# VOLTA B3665 94/04/18/107

560.0

80.0

10 ms



RECEIVED  
OPERATIONS  
SECTION

*[Handwritten signature]*

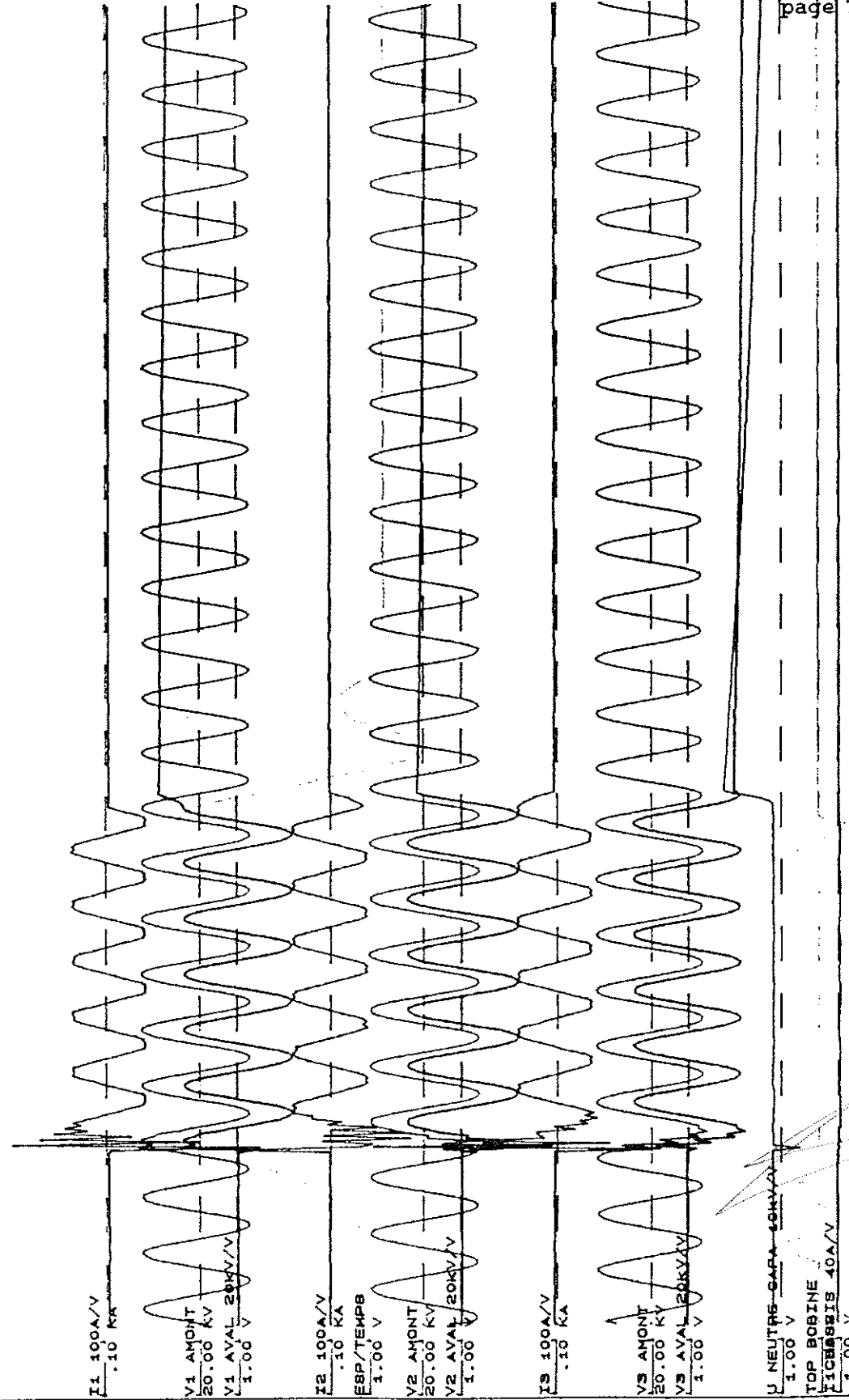
1467

# VOLTA B3665 94/04/18/108

560.0

80.0

10 ms



I1 100A/V  
.10 KA

V1 AMONT  
20.00 KV  
V1 AVAL 20KV/V  
1.00 V

I2 100A/V  
.10 KA  
ESP/TEMP  
1.00 V

V2 AMONT  
20.00 KV  
V2 AVAL 20KV/V  
1.00 V

I3 100A/V  
.10 KA

V3 AMONT  
20.00 KV  
V3 AVAL 20KV/V  
1.00 V

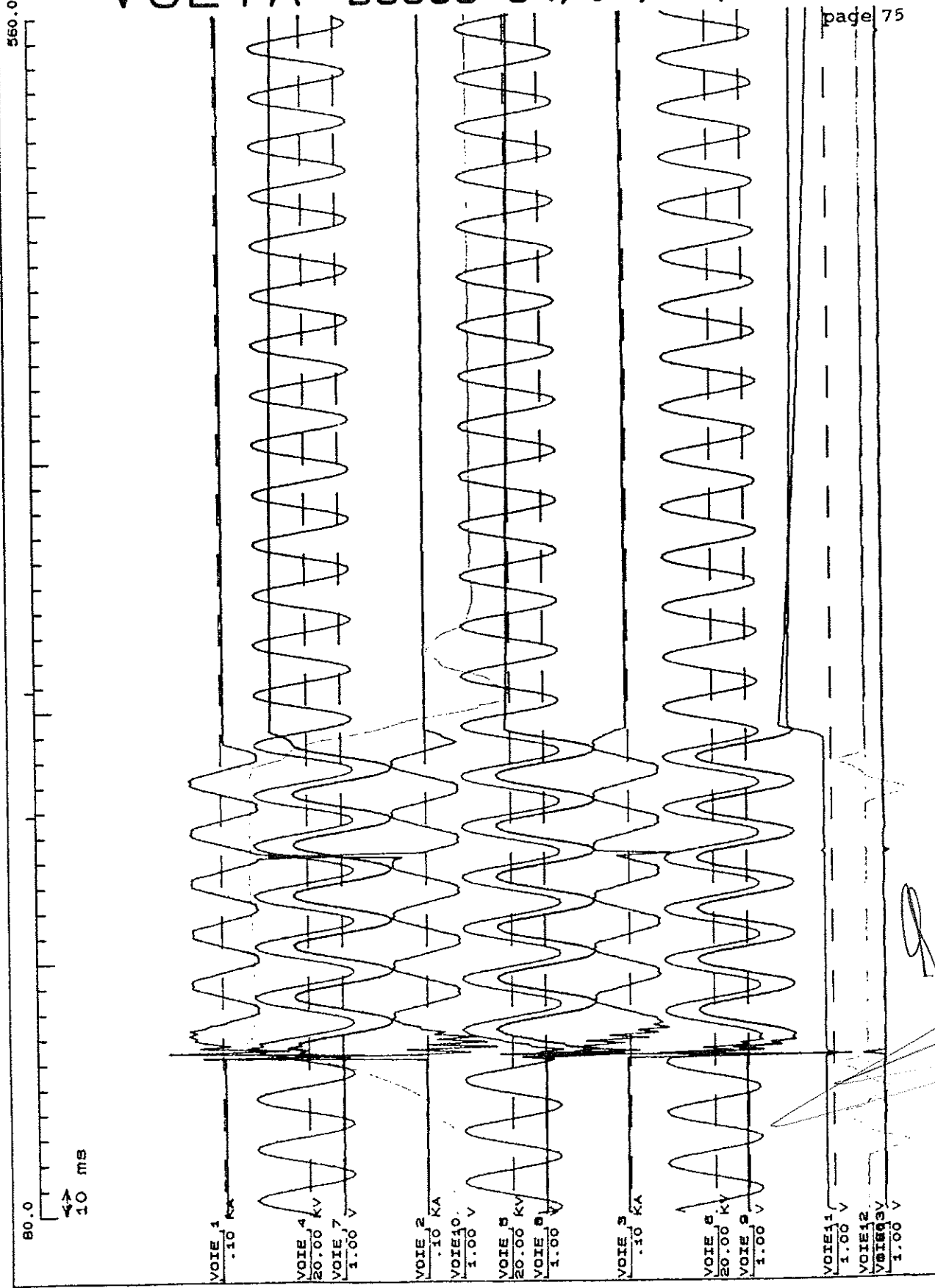
U NEUTRE-CARA 40KV/V  
1.00 V

TOP BORNE  
TICBBSIS 40A/V  
1.00 V

RECEIVED  
MARCH 6  
1994

1468

# VOLTA B3665 94/04/18/109



EXAMINADO  
OPINIONADA

8

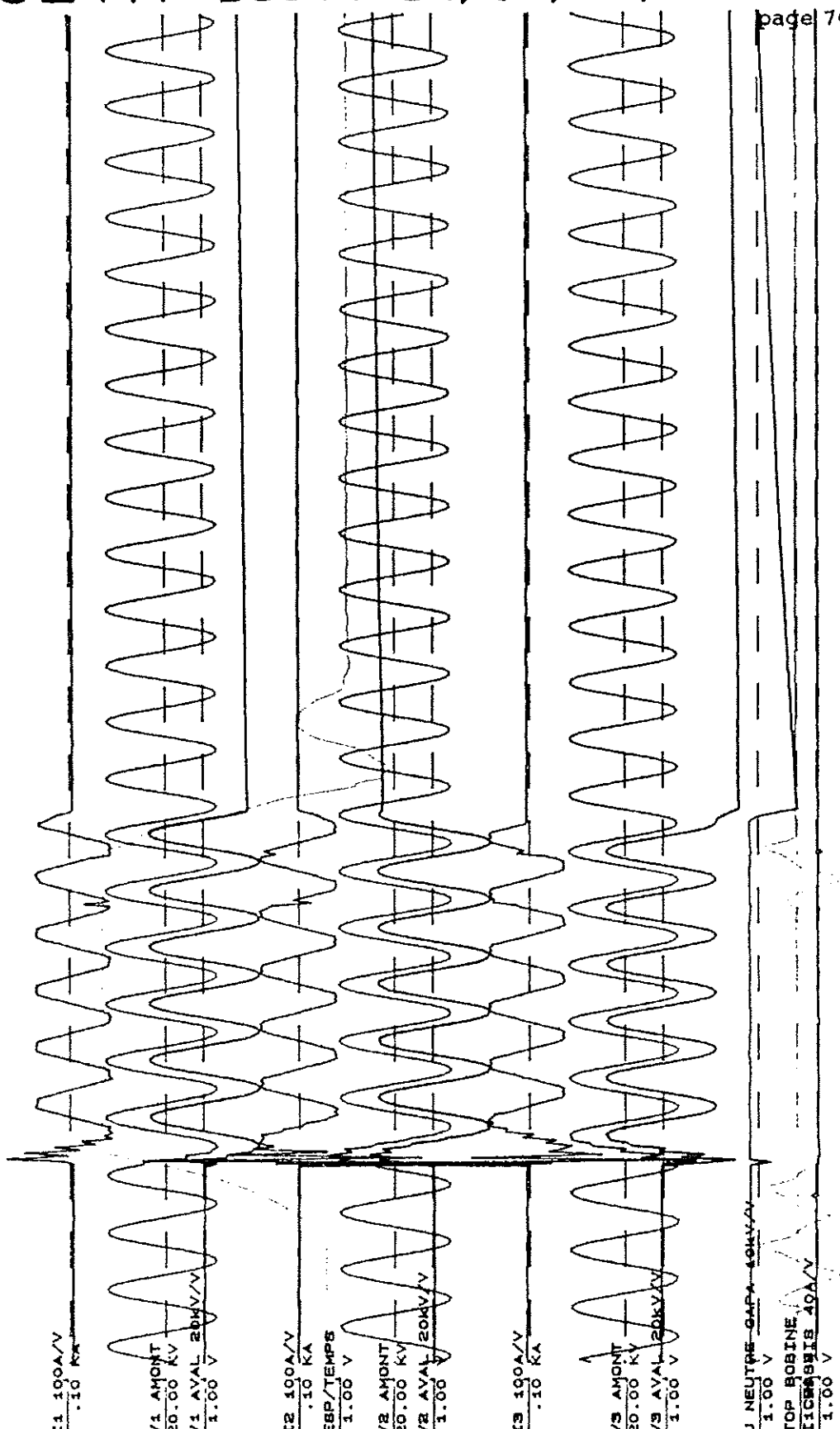
1469

# VOLTA B3665 94/04/18/110

560.0

80.0

10 mb



Z1 100A/V  
.10 KA

V1 AMONT  
20.00 KV  
V1 AVAL 20KV/V  
1.00 V

Z2 100A/V  
.10 KA  
ESP/TEMPS  
1.00 V

V2 AMONT  
20.00 KV  
V2 AVAL 20KV/V  
1.00 V

Z3 100A/V  
.10 KA

V3 AMONT  
20.00 KV  
V3 AVAL 20KV/V  
1.00 V

U NEUTRE -GAP- 10KV/V  
1.00 V  
TOP ROBINET  
TICRABIS 40A/V  
1.00 V

PROF. S. GONZALEZ

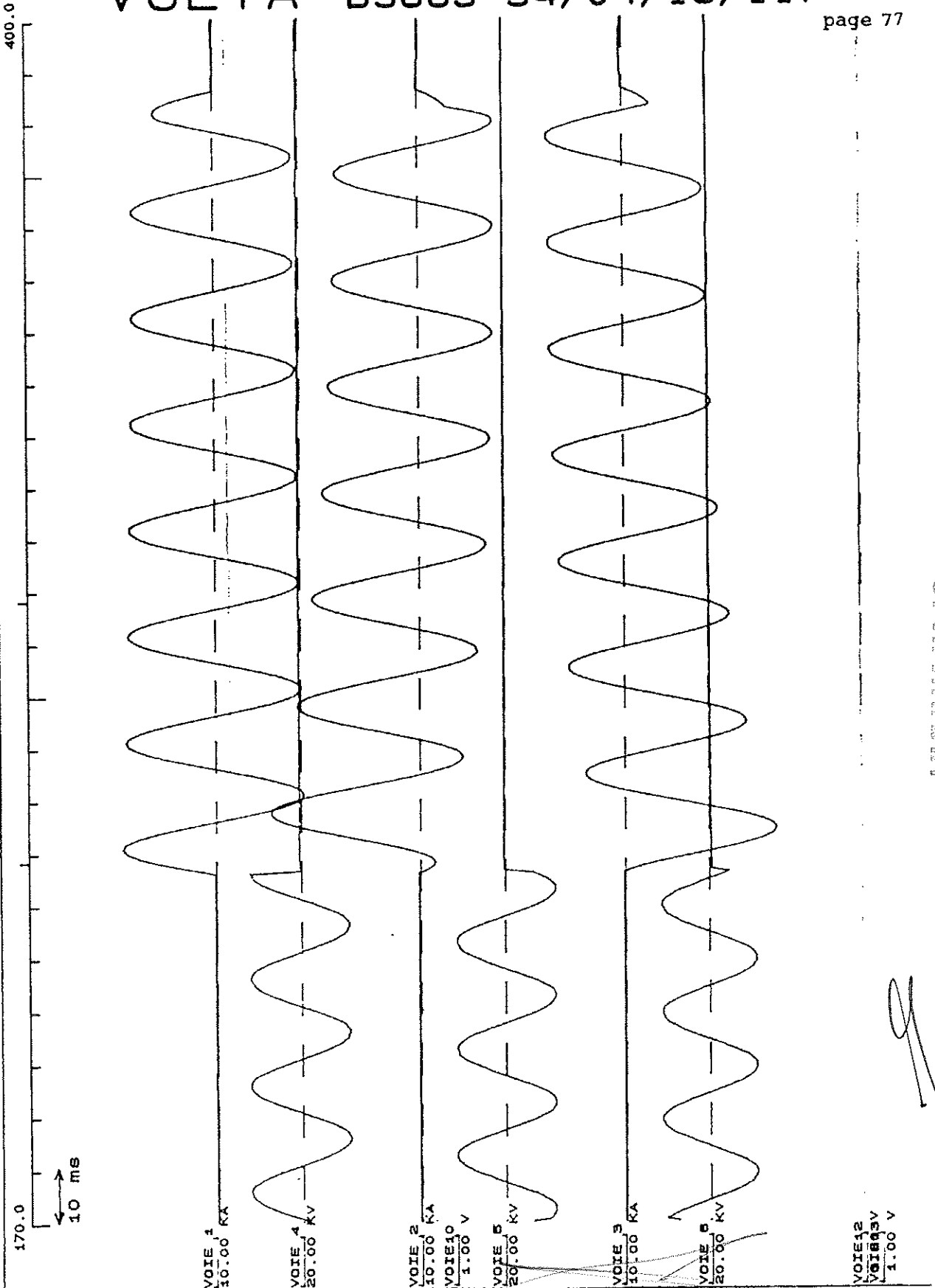
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1480

# VOLTA B3665 94/04/18/117

page 77



WUWUWUWU  
OPIWUWUWU  
O OPIWUWU

g

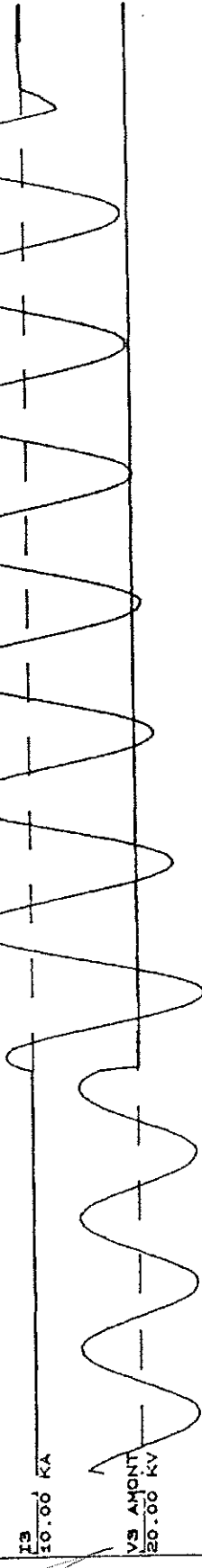
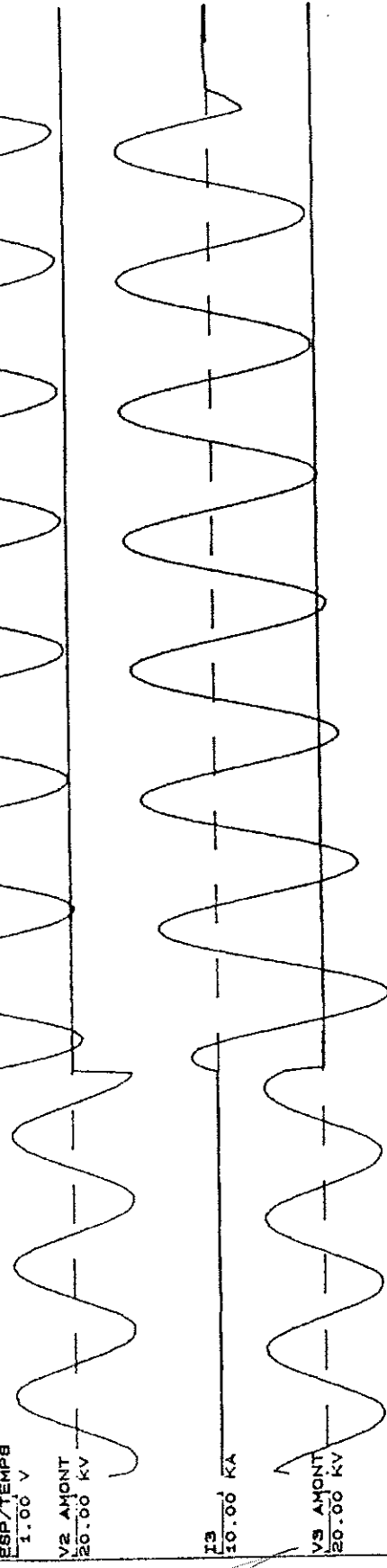
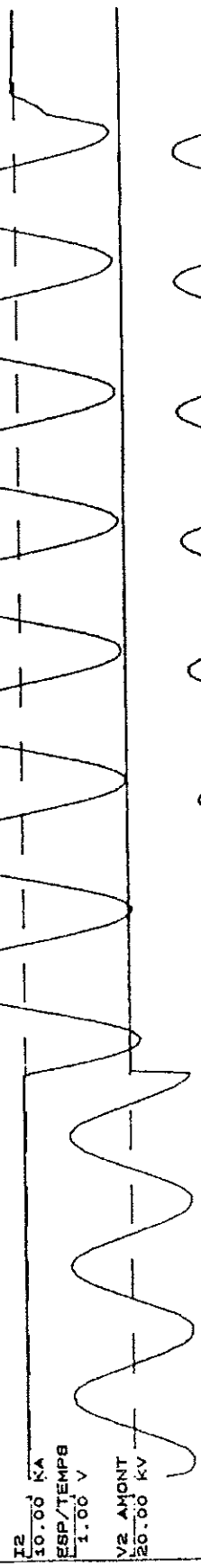
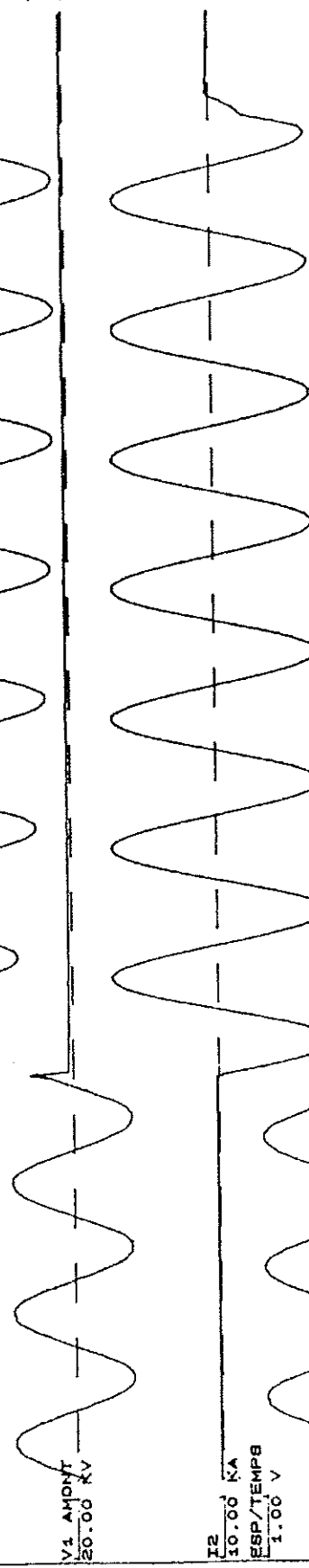
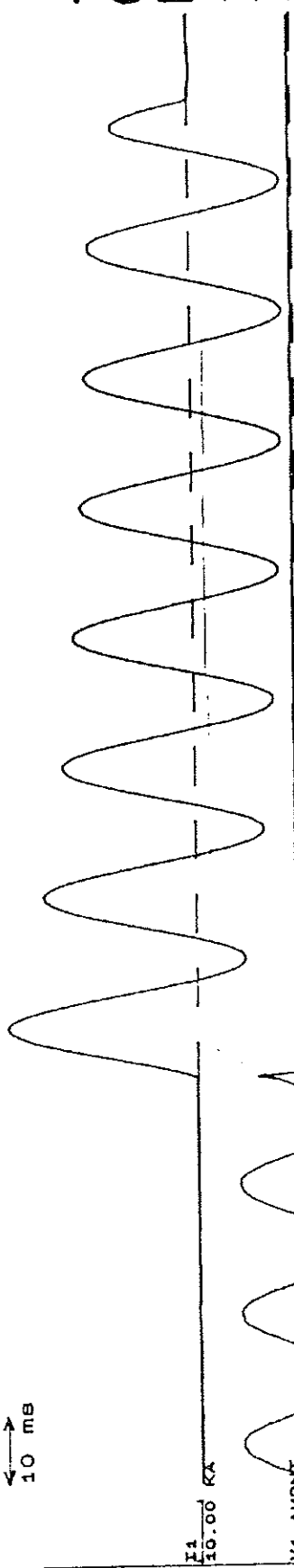
8

1481

400.0

170.0

10 ms



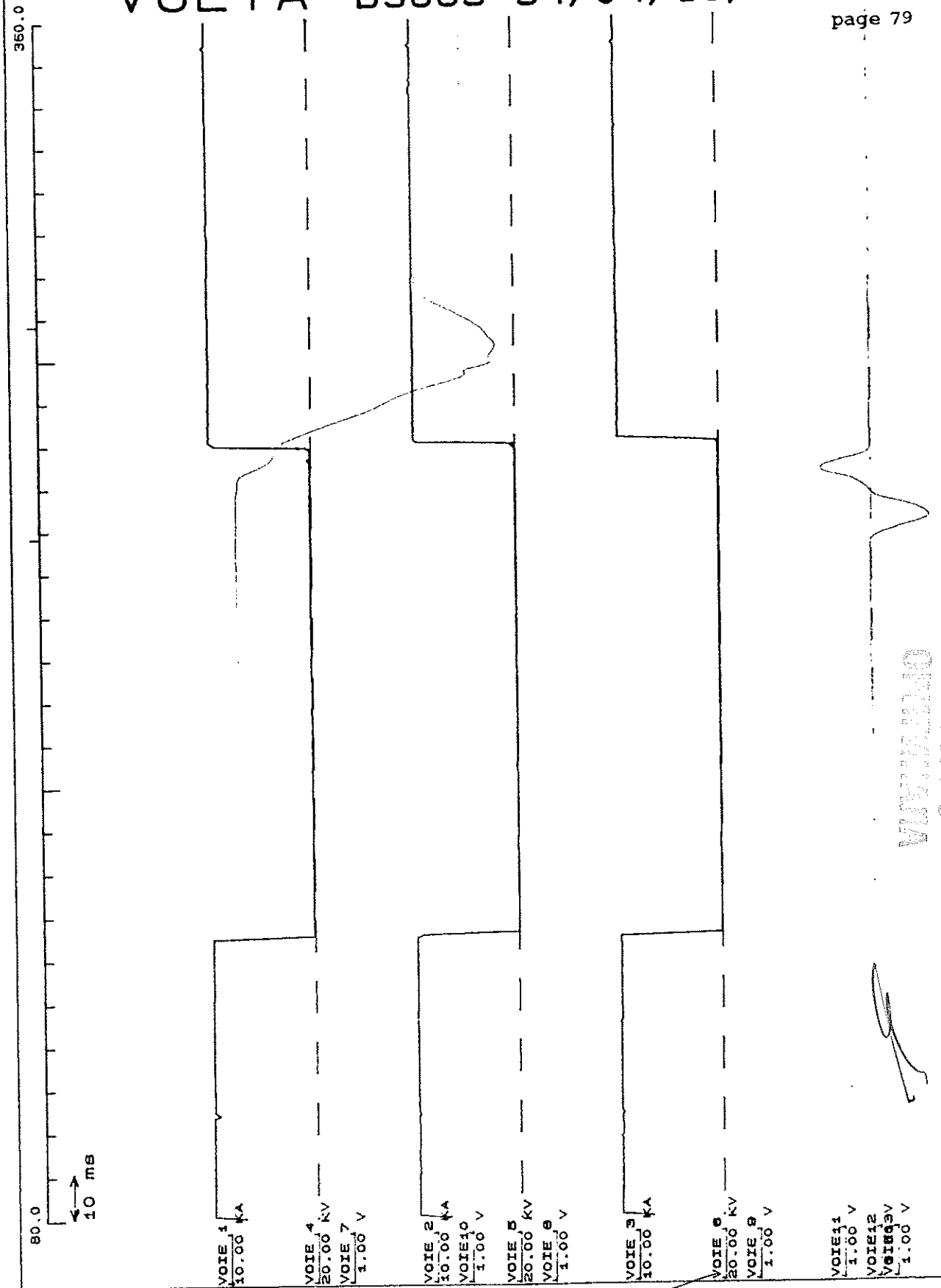
TOP BOBINE  
MICRABIS 40A/V  
1.00 V

VIVIANO  
S. ONDRE

1472



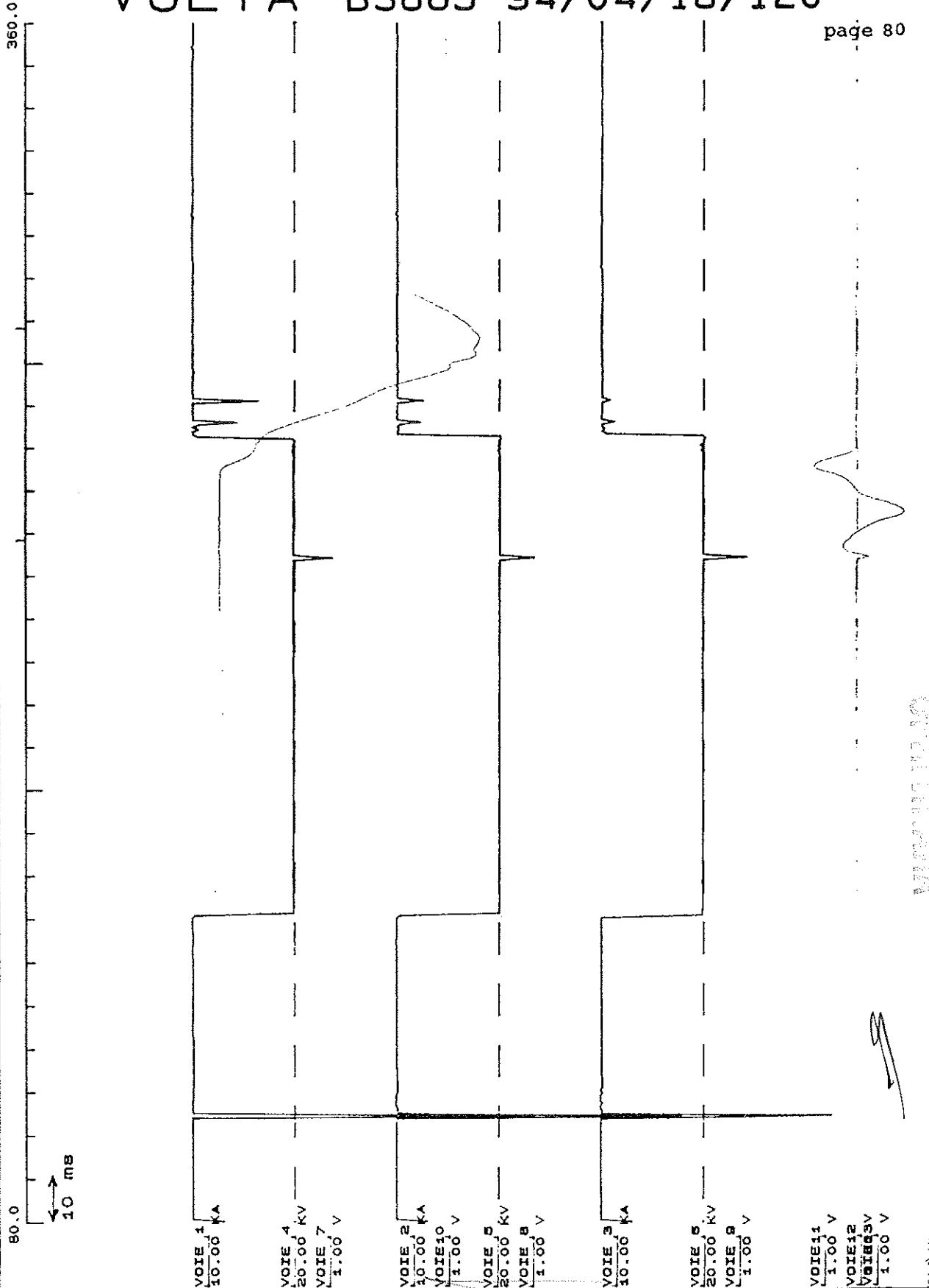
# VOLTA B3665 94/04/18/119



VOLTA B3665

1473

# VOLTA B3665 94/04/18/120

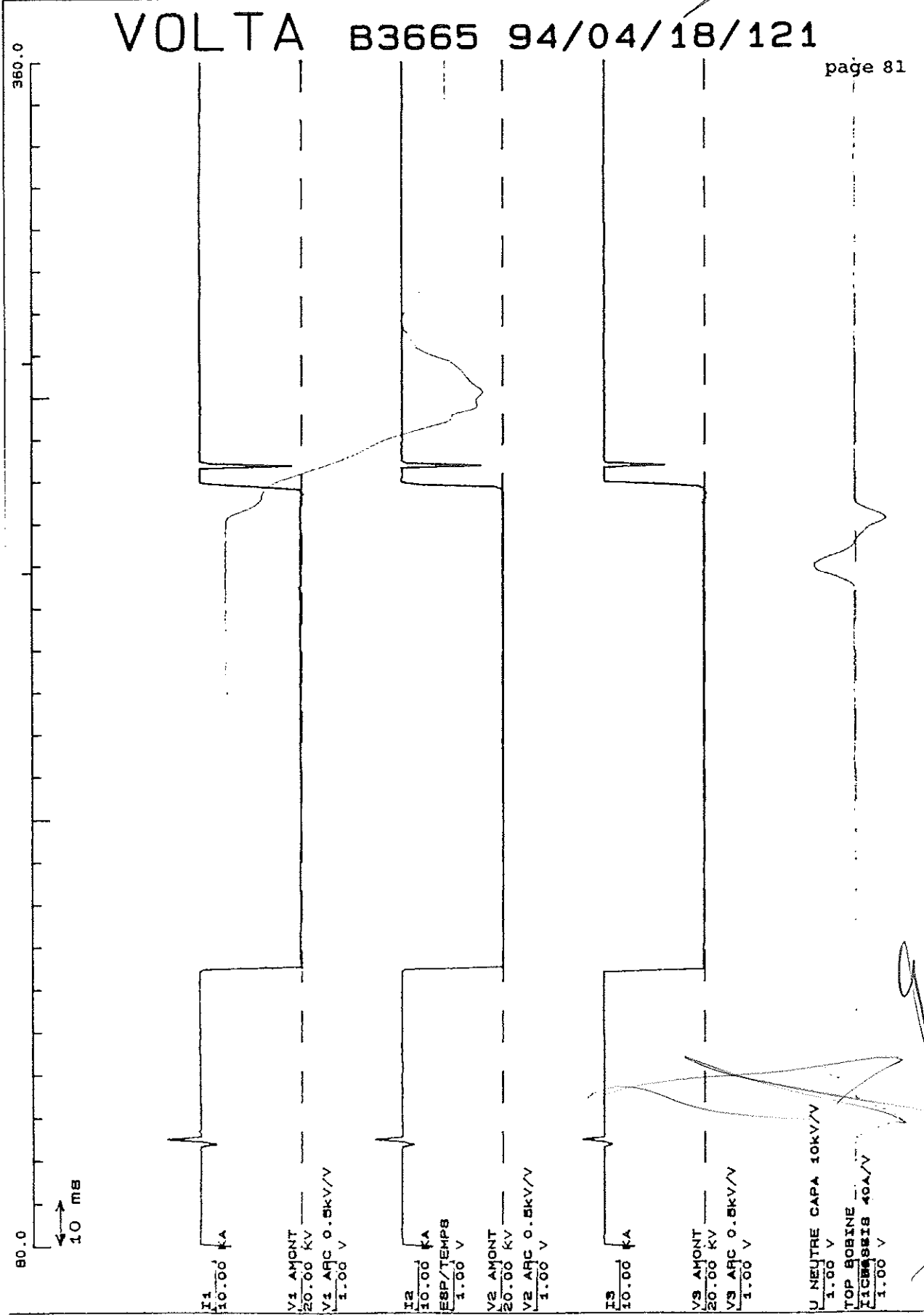


VIVIANI P. 200  
9 01/11/16



1474

# VOLTA B3665 94/04/18/121



VIRVILINDO  
OPERAIRIA

1475

**VOLTA**

centre d'essais  
station d'essais à grande puissance  
F-38000 Grenoble cedex 9

**51168342XB**

AB3665d

**ESEF**

ensemble des stations d'essais Françaises  
BP 10  
37000 Muret sur Loire

## TEST REPORT No. AB 3665 d

Apparatus : High-voltage switch

Designation : SM6 inside cubicle SM6 type IM

Rated voltage 24 kV - Rated normal current 400 A - Rated frequency 50/60 Hz

Manufacturer : MERLIN GERIN - Grenoble - FRANCE

Object : Single capacitor bank current switching tests rated at :

135 A - 24 kV

Short-circuit making tests rated at :

31.5 kA peak - 24 kV

Tested for : MERLIN GERIN

Date(s) of tests : 13 - 14 - 15 - 18 / 04 / 1994

These tests were carried out in accordance with : Customer request based on NFC standard 64.130 (1992) § 6.101.12

The performance of the apparatus tested and the results obtained are shown in the tables, oscillograms and photographs enclosed.

The responsibility for conformity of any apparatus having the same designation with that tested rests with the Manufacturer.

The documents forming part of this report are :

Ratings of the apparatus	page(s) 2 to 4
Record of proving tests	page(s) 5
Conditions of proving tests	page(s) 6 to 11
Test result tables	page(s) 12 to 31
Oscillograms	page(s) 32 to 61
Photographs	page(s) none

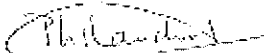
The test report comprises 81 page(s)

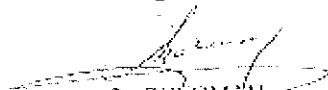
Only integral reproduction of this report is permitted without written permission from the Testing Station Manager.

Grenoble 17 / 07 / 1995

Technical Manager

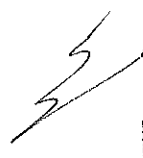
Testing Station Manager

  
P. BRODOUT

  
J.C. OKERMAN

REPRODUCTION  
INTERDITE

1476

  
**VOLTA**

centre d'essais  
station d'essais à grande puissance  
F-38050 Grenoble cedex 9

No. AB 3605 d page 2

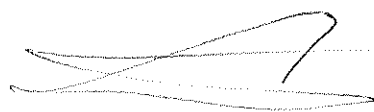
## RATINGS OF THE METAL-ENCLOSED SWITCHGEAR ACCORDING TO IEC 298

Manufacturer	: MERLIN GERIN
Designation	: Cubicle SM6 type IM
Number of phases	: 3
Voltage	kV: 24
Power frequency withstand voltages (1 min)	
- to earth and between phases	kV: 50
- across the isolation distance	kV: 60
Lightning impulse withstand voltages	
- to earth and between phases	kV: 125
- across the isolation distance	kV: 145
Frequency	Hz: 50/60
Normal current	A: 400
Peak withstand current	kA: 31.5
Short-time withstand currents	
- main circuit	kA: 12.5
- earthing switch	kA: 12.5
- earth bar	kA: 12.5
Duration of short-circuit	s: 1
Arcing withstand due to an internal fault	kA: /
- duration	s: /
- type of accessibility	: /
Degree of protection	: IP2XC
Dimensions	: /
Weight	: /
Drawing(s) No.	: 3728856 A

The metal-enclosed switchgear, is equipped with : 1 switch SM6

WITNESSED  
BY  
DATE

9



1477

**COLIA**

centre d'essais  
station d'essais à grande puissance  
1-20050 Grenoble cedex 9

No. AB 3665 d

page 3

## RATINGS OF THE HV SWITCH ACCORDING TO IEC 265

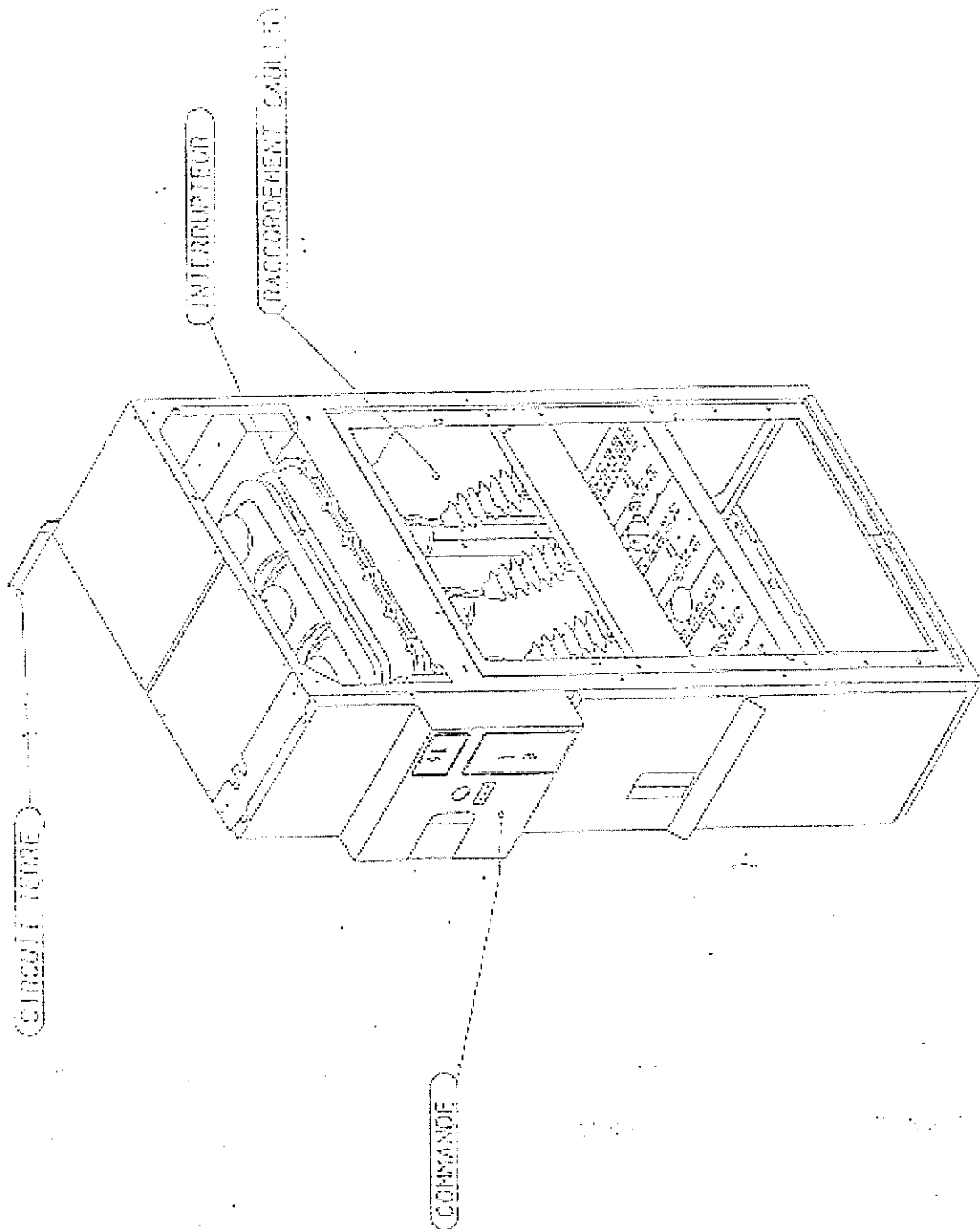
Manufacturer	: MERLIN GERIN
Designation	: SM6
Number of poles	: 3
Type of switch	: with increased operating frequency
Class	: indoor
Voltage	kV: 24
Power frequency withstand voltage (1 min)	kV: 50
Lighting impulse withstand voltage	kV: 125
Frequency	Hz: 50/60
Normal current	A: 400
Breaking capacities	
Mainly active load	A: 400
No-load transformer	A: /
Closed-loop	A: 400
Cable-charging	A: 25
Line-charging	A: /
Earth-fault	A: 75
Cable-charging under earth-fault conditions	A: 44
Making capacity	kA: 31.5
Peak withstand current	kA peak: 31.5
Short-time withstand current	kA R.M.S.: 12.5
- duration	s: 1
Mechanical endurance	Operating cycles: 1000
interrupting medium	: gas SF6
Absolute pressure required at 20 °C	bar: 1.4
Operating temperatures	minimum °C: - 25 maximum °C: + 55
Degree of protection	: IP2XC
Drawing(s) No.	: /

WIRUNG  
GERING  
G OLLER

g

8

1478



87200000  
 MIERLIN GERIN  
 CELLULE  
 TELECOMPTON GEN  
 SMG  
 FIGURE 3  
 1479

This drawing is the property of the company and is not to be distributed outside the company without the express written consent of the company. The company assumes no responsibility for the use of this drawing for any purpose other than that for which it was prepared.

1479

VOLTA

centre d'essais  
station d'essais à grande puissance  
F-38350 Grenoble cedex 9

No. AB 3665 d page 5

## RECORD OF PROVING TESTS

Apparatus No. :

test type and test-duty	Page
- Calibration of the supply circuit A : 1.29 kA - 24 kV	3
- Calibration of the supply circuit B : 6.98 kA - 24 kV	10
- No-load operations before tests	12
- Single-capacitor bank switching current tests	
Test-duty No.4 : 10 CO at 133/138 A - 24.8/25.3 kV	13 to 16
Test-duty No.2 : 10 CO at 145/148 A - 26.5/27.0 kV	17 to 20
Test-duty No.1 : 10 CO at 46.0/49.0 A - 24.4/24.9 kV	21 to 24
Test-duty No.3 : 10 CO at 46.0/47.7 A - 24.2/24.7 kV	25 to 28
- 2 making tests at short-circuit making current at: 31.5 kA peak - 24.6/24.7 kV	29
- No-load operations after tests	30
- Measurement of the resistance of the main circuit before and after tests	31

Manufacturer Representative(s) : Mr MESTRALLET

MERLIN GERIN/DM

Test Manager

M.PAILLOT

SEGP VOLTA

VOLTAGE CONTROL

1480



# Volta

centre d'essai  
station d'essai  
38050 Greno

## 51233846XB

### A20020255

ACCREDITATION  
N° 1-0140



## TEST REPORT No. A20020255

**Apparatus** : Metal-enclosed switchgear

**Designation** : MERLIN GERIN SM6 type QM

Rated voltage 12 kV - Rated normal current 200 A - Rated frequency 50/60 Hz

**Manufacturer** : SCHNEIDER ELECTRIC INDUSTRIES SAS - Rueil-Malmaison - FRANCE

**Object** : Breaking tests at the rated transfer current (test duty 4) at :  
- 1730 A - 12 kV

**Tested for** : SCHNEIDER ELECTRIC

**Date(s) of tests** : 04/12/2002

**Test laboratory** : VOLTA - 38050 Grenoble - France

These tests were carried out in accordance with : **Standard IEC 60420 (11/90) § 6.103.4**

The performance of the apparatus tested and the results obtained are shown in the tables, oscillograms and photographs enclosed.

The responsibility for conformity of any apparatus having the same designation with that tested rests with the Manufacturer.

The documents forming part of this report are :

Ratings of the apparatus	2 page(s)
Record of proving tests	1 page(s)
Conditions of proving tests	6 page(s)
Test result tables	1 page(s)
Photographs	0 page(s)
Oscillograms	5 page(s)
Drawings of the apparatus	1 page(s)

The test report comprises 17 pages

This record of proving test shall only be reproduced in the complete form.

The accreditation by the COFRAC Testing section attests of the laboratory competence in the tests covered by the accreditation.

Grenoble 04/12/2002

Test Manager

Technical Manager

  
P-J REY

  
E. FERNANDEZ

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04/12/2002  
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1481

# Volta

centre d'essais  
station d'essais à grande puissance  
F-38050 Grenoble cedex 9

No. A20020255

page 2

C298-A/c

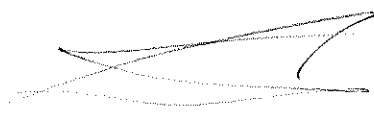
## RATINGS OF THE METAL-ENCLOSED SWITCHGEAR ACCORDING TO IEC 60298

Manufacturer	: SCHNEIDER ELECTRIC INDUSTRIES SA
Designation	: MERLIN GERIN SM6 type QM
Number of phases	: 3
Voltage	kV : 12
Power frequency withstand voltage (1 min)	
- to earth and between poles	kV : 28
- accross the isolating distance	kV : 32
Lightning impulse withstand voltage	
- to earth and between poles	kV peak : 75
- accross the isolating distance	kV peak : 85
Frequency	Hz : 50/60
Normal current	A : 200
Peak withstand current	kA : 50
Short-time withstand current (duration)	
- main circuit	kA : 20 (1 s)
- earthing switch	kA : 20 (1 s)
- earth bar	kA : 20 (1 s)
Arcing withstand due to an internal fault	kA : /
- duration	s : /
- type of accessibility (A or B)	: /
Degree of protection	: IP2XC
Dimensions (H x W x D)	mm : /
Weight	kg : /
Drawing(s) No.	: 3730457 ind H sheet 005/028

Metal-enclosed switchgear equipped with

- 1 SM6 switch (see page 3)
- 1 earthing switch upper side
- 1 earthing switchdown side

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# Volta

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No. A20020255

page 3

C420-A/a

## RATINGS OF THE HV SWITCH-FUSE COMBINATION ACCORDING TO IEC 60420

Manufacturer	: SCHNEIDER ELECTRIC INDUSTRIES SA
Designation	: MERLIN GERIN SM6
Voltage	kV : 12
Power frequency withstand voltage (1 min)	kV : 28
Lightning impulse withstand voltage	kV peak : 75
Peak value of TRV	kV : 20.6
Rate-of-rise of TRV	kV/ $\mu$ s : 0.34
Frequency	Hz : 50/60
Normal current	A : 200
Peak withstand current	kA : 50
Short-time withstand current - duration	kA : 20 s : 2
Transfer current	A : 1730
Take-over current	A : /
Short-circuit breaking current	kA : /
Short-circuit making current	kA peak : 50
FUSES	
Manufacturer	: SCHNEIDER ELECTRIC
Type	: MERLIN GERIN
Striker type	: Medium
Drawing(s) No.	: /

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page 4

LH1-A/a

## RECORD OF PROVING TESTS

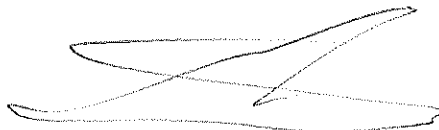
Apparatus No. : /

Test type and test-duty	Page
- Calibration of the supply circuit : 12.9 kA - 12 kV - $\cos \Phi < 0.2$	8
- Calibration of the test circuit : 1760 A - 12 kV - $\cos \Phi 0.27$	10
- Breaking tests at the rated transfer current : 3 breaking tests at : 1540 / 1549 A - 12.2 / 12.3 kV	11

Manufacturer  
Representative(s)

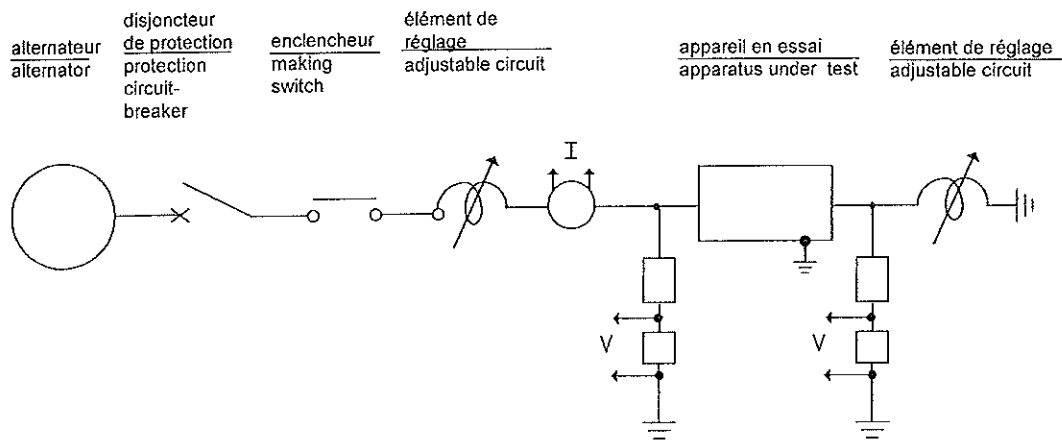
: Mr VOLMAT

SCHNEIDER ELECTRIC



1484

## TEST CIRCUIT



## CONDITIONS OF PROVING TESTS

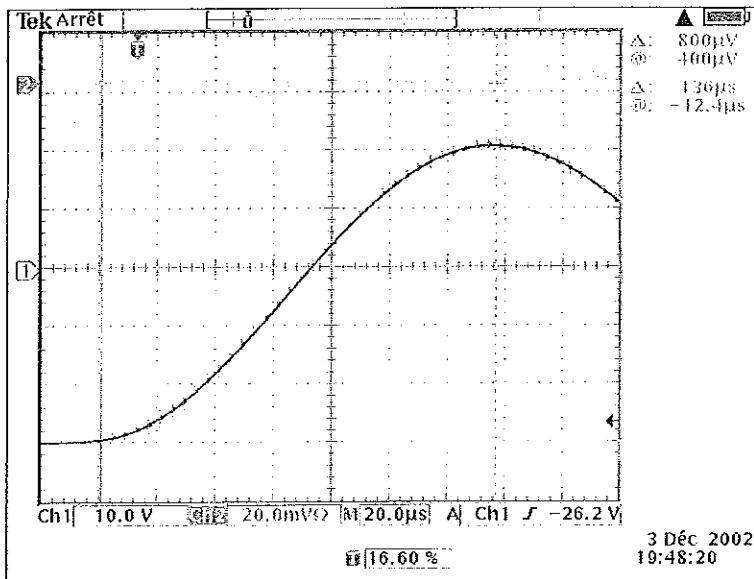
- Pressure of the interrupting medium : 0.4 bar gauge
- Supply voltage of the opening coil : 110 Vdc
- The frame is connected to earth, with measurement of the earth current.
- Supply circuit : 12.9 kV - 12 kV = 13.5 % of the test circuit (see page 8)  
TRV : see page 9
- Test circuit : see page 10
- Load circuit : TRV see page 6

REVISION 0  
DATE 03/04/2004

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## PROSPECTIVE TRV OF THE LOAD CIRCUIT



Circuit : 1730 A - 12 kV

$$t_3 (\mu\text{s}) = 116$$

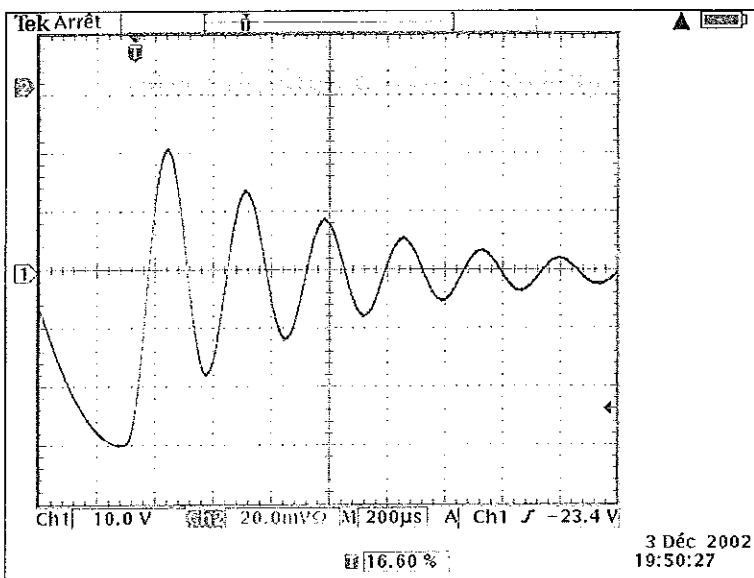
$$k = 1.68$$

$$f (\text{kHz}) = 3.75$$

Time base

$\mu\text{s}/\text{unit} : 20$

$\text{ms}/\text{unit} :$



$$k = 1.68$$

Time base

$\mu\text{s}/\text{unit} : 200$

$\text{ms}/\text{unit} :$

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# Volta

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page 7

INCP-A/d

## UNCERTAINTIES OF MEASURING CHAINS

Type of measurement	Range	Type of calculation	Total uncertainty (2 $\sigma$ ) in %
Current from shunt	0 - 5 A	True r.m.s. value	1.15
Current from shunt	0 - 5 A	Peak value	1.07
Current from shunt	> 5 A	True r.m.s. value	1.65
Current from shunt	> 5 A	Peak value	1.60
Current from pulse current transformer	0 - 65 A	true r.m.s. value	1.15
Current from tore	> 100 A	True r.m.s. value	1.28
Current from tore	> 100 A	r.m.s. value (peak to peak / $\sqrt{8}$ )	1.67
Current from tore	> 100 A	Peak value	1.20
Current from tore	> 100 A	Joule integral	2.56
Current from tore	> 100 A	Quadratic average (peak to peak / $\sqrt{8}$ )	3.34
Power factor	> 100 A	Peak ratio	2.69
Voltage from CD or MCD	$\leq 1000$ V	True r.m.s. value	1.08
Voltage from CD or MCD	$\leq 1000$ V	r.m.s. value (peak to peak / $\sqrt{8}$ )	1.42
Voltage from CD or MCD	$\leq 1000$ V	Peak value	0.98
Voltage from CD or MCD	$\geq 1000$ V and $< 10$ kV	True r.m.s. value	< 20 kHz 1.61 > 20 kHz 1.42
Voltage from CD or MCD	$\geq 1000$ V and $< 10$ kV	r.m.s. value (peak to peak / $\sqrt{8}$ )	< 20 kHz 1.93 > 20 kHz 1.79
Voltage from CD or MCD	$\geq 1000$ V and $< 10$ kV	Peak value	< 20 kHz 1.55 > 20 kHz 1.35
Voltage from CD or MCD	$\geq 10$ kV	True r.m.s. value	< 20 kHz 1.61 > 20 kHz 3.08
Voltage from CD or MCD	$\geq 10$ kV	r.m.s. value (peak to peak / $\sqrt{8}$ )	< 20 kHz 1.93 > 20 kHz 3.27
Voltage from CD or MCD	$\geq 10$ kV	Peak value	< 20 kHz 1.55 > 20 kHz 3.05
Arc voltage from CD or MCD	$< 1000$ V	Peak value	1.55
Arc energy measured from CD or MCD	U $\geq 10$ kV I measured with TORE $> 100$ A	True r.m.s. value	2.35
Pressure	0.5 to 1 bar 1 to 2 bars 2 to 5 bars 5 to 10 bars	Peak value	4.15 2.75 2.10 1.72
Time	10 to 200 ms		$\approx 3$
Time	200 ms to 16 s		$\pm 10$ ms

CD : capacitive divider

MCD : mixed capacitive divider

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No. A20020255

page 8

ETCAC1-A/a

## CALIBRATION OF THE SUPPLY CIRCUIT

Circuit	100 % source side load side	■ ■ ■ ■ ■ ■	12 kV		
Oscillogram	No.	20020255.0003			
Phase			1	2	3
Frequency		Hz	50		
Measure of the r.m.s current	Time	ms	20	20	20
	Value	kA	13.0	12.9	12.9
	Average	kA	12.9		
Aperiodic component	Value	%	46	41	87
Peak current		kA	27.9	26.2	35.7
Power factor			< 0.2		

9

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No. A20020255

page 10

ETCAC1-A/a

## CALIBRATION OF THE TEST CIRCUIT

Circuit	100 % source side load side	■ ■	12 kV		
Oscillogram	No.	20020255.0008			
Phase			1	2	3
Frequency		Hz	50		
Measure of the r.m.s current	Time	ms	160	160	160
	Value	kA	1.77	1.75	1.76
	Average	kA	1.76		
Aperiodic component	Value	%	< 20	< 20	< 20
Peak current		kA	3.06	3.11	3.74
Power factor			0.27		

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No. A20020255

page 11

RO-A/b

## RESULTS OF THE BREAKING TESTS AT THE TRANSFER CURRENT

Test-duty : No. 4

Operating conditions of the apparatus : See page 5

Test conditions : See pages 5 to 10

Apparatus condition before tests : - new : ■ ■  
- having performed the previous tests :

Oscillogram		No.	20020255						
			0011		0012		0013		
Operating sequence			O1		O2		O3		
Broken current	I1	kA	/	1547	1549				
	I2	kA	1540	/	1549				
	I3	kA	1540	1547	/				
	average	kA	1540	1547	1549				
D.c. component		%	< 20	< 20	< 20				
Recovery voltage	V1	kV	7.10	7.10	7.25				
	V2	kV	7.12	7.10	7.14				
	V3	kV	7.03	6.97	6.99				
	average	kV	7.08	7.04	7.13				
	phase to phase	kV	12.3	12.2	12.3				
Time	opening	ms	29.7	29.7	29.7				
	arcing	ms	15.3	12.0	8.60				
	break	ms	45.0	41.7	38.3				
TRV peak		kV	/	/	/				
Remarks									

Apparatus condition after tests

: - No deterioration was noted.  
- The apparatus operates normally.

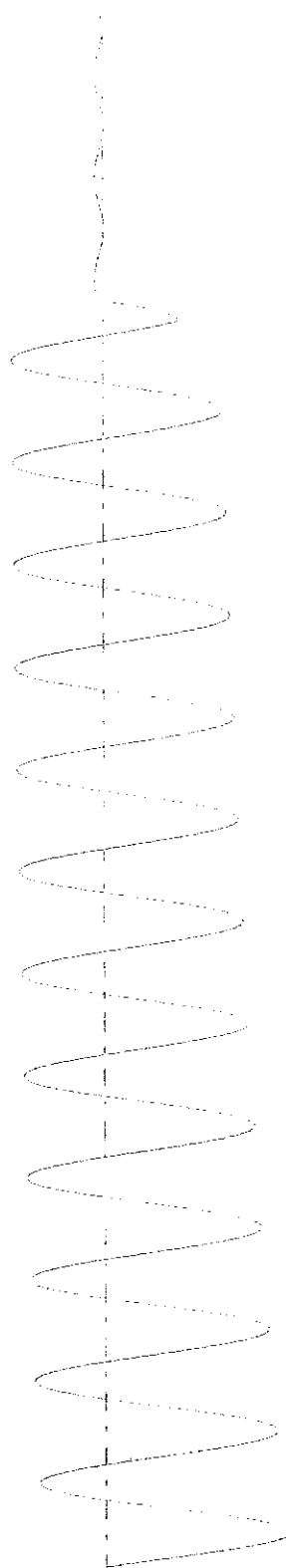
1490

329.53 ms

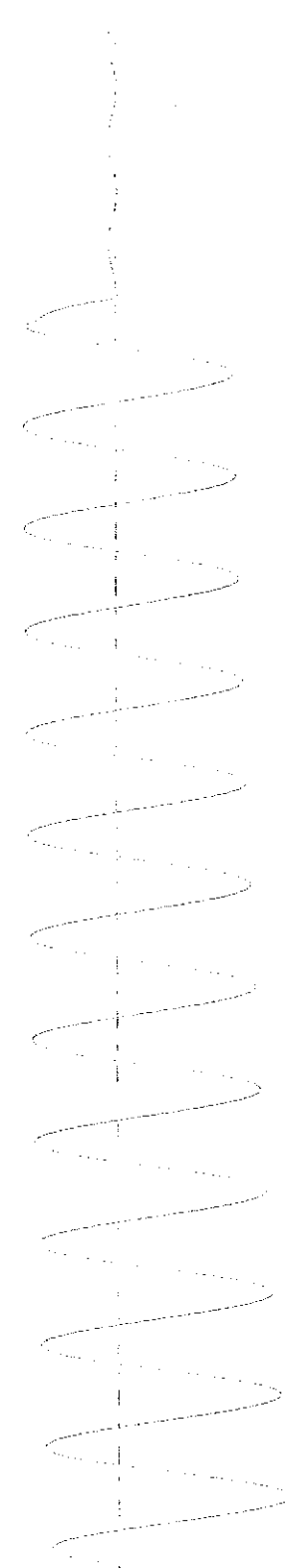
0,00  $\mu$ s

13,18 ms/cm

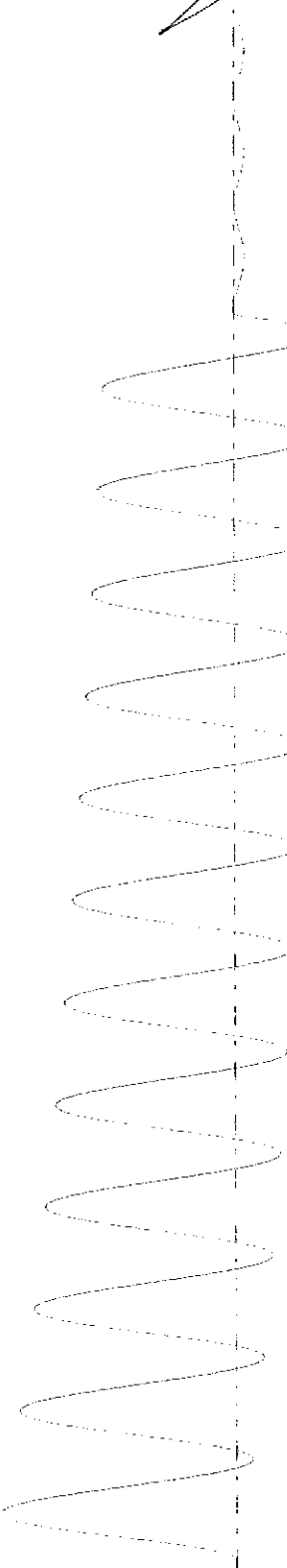
10,00 ms



10,00 kA/cm



10,00 kA/cm



10,00 kA/cm

1491

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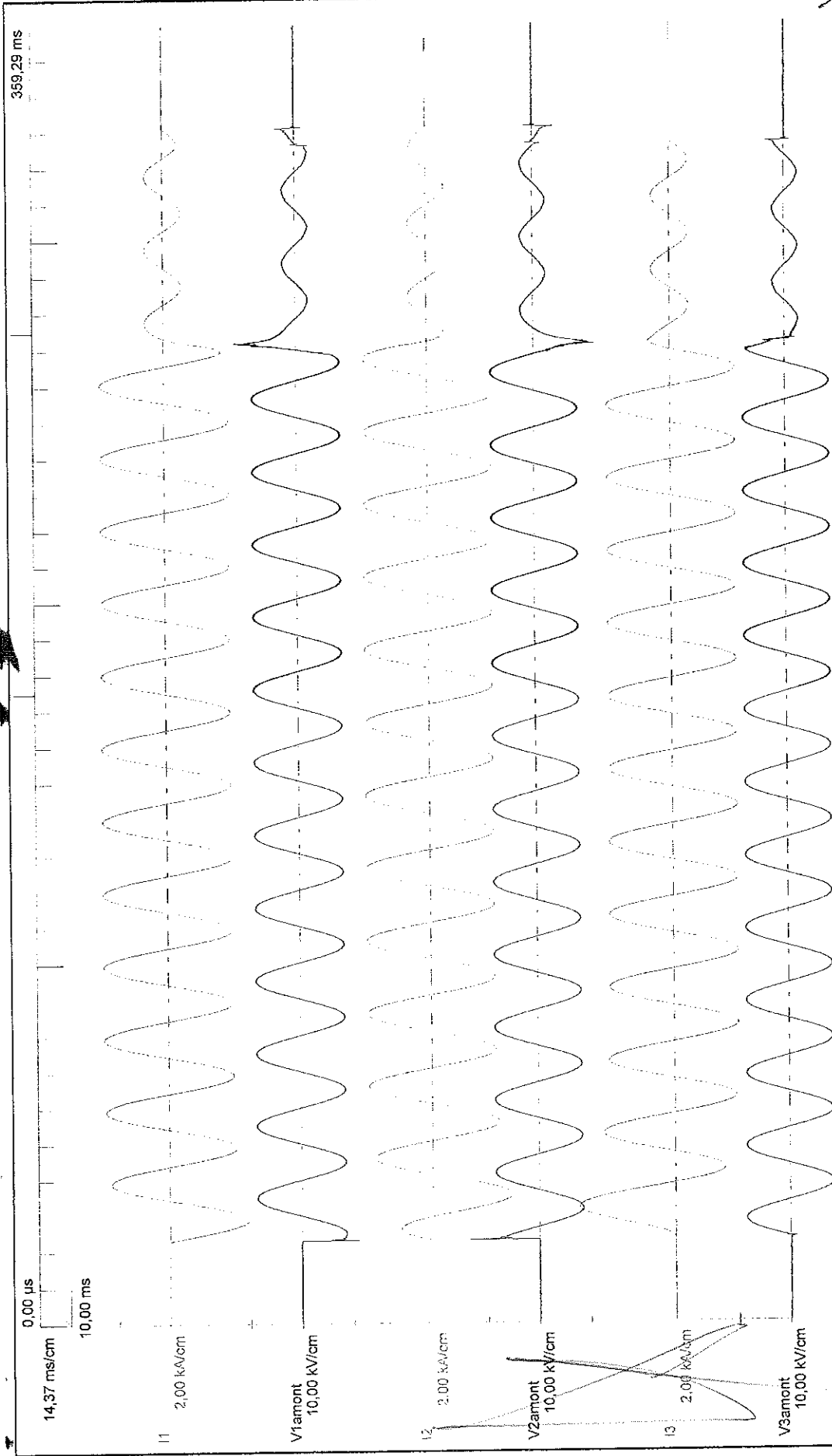
VOLTA 20020255 - 0003

CATIE V.1.5.2:180 page 001

Effectué le 04/12/2002 14:56:25  
Edité le 04/12/2002 18:53:31

*[Faint watermark text]*

*[Handwritten signature]*



359.29 ms

0.00  $\mu$ s

14.37 ms/cm

10.00 ms

I1 2.00 kV/cm

V1amont 10.00 kV/cm

I2 2.00 kV/cm

V2amont 10.00 kV/cm

I3 2.00 kV/cm

V3amont 10.00 kV/cm

VOLTA 20020255 - 0008

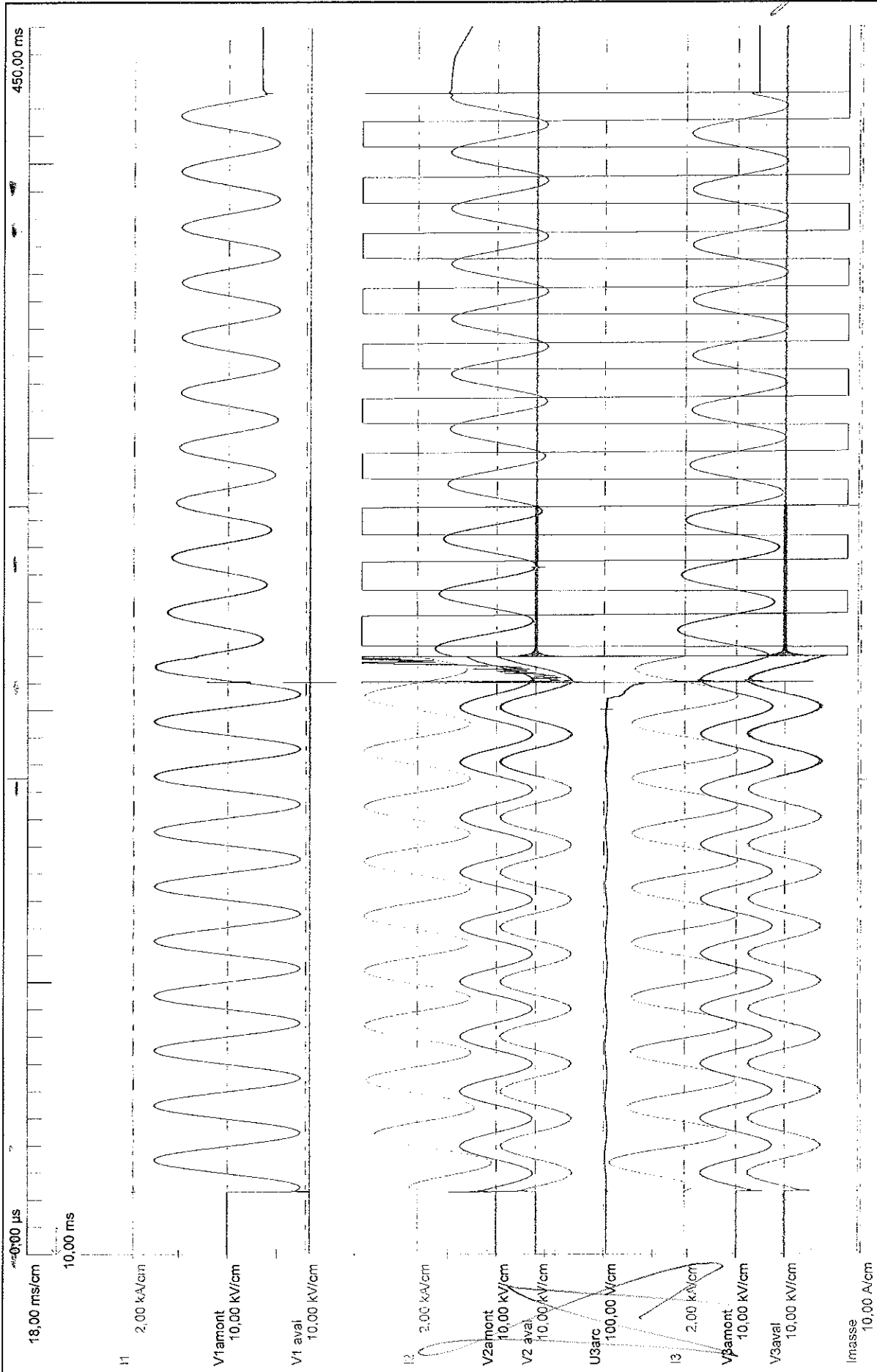
Effectué le 04/12/2002 16:15:48  
 Edité le 04/12/2002 18:55:46

9

CATIE V.1.5.2.180 page 001

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PERTE C



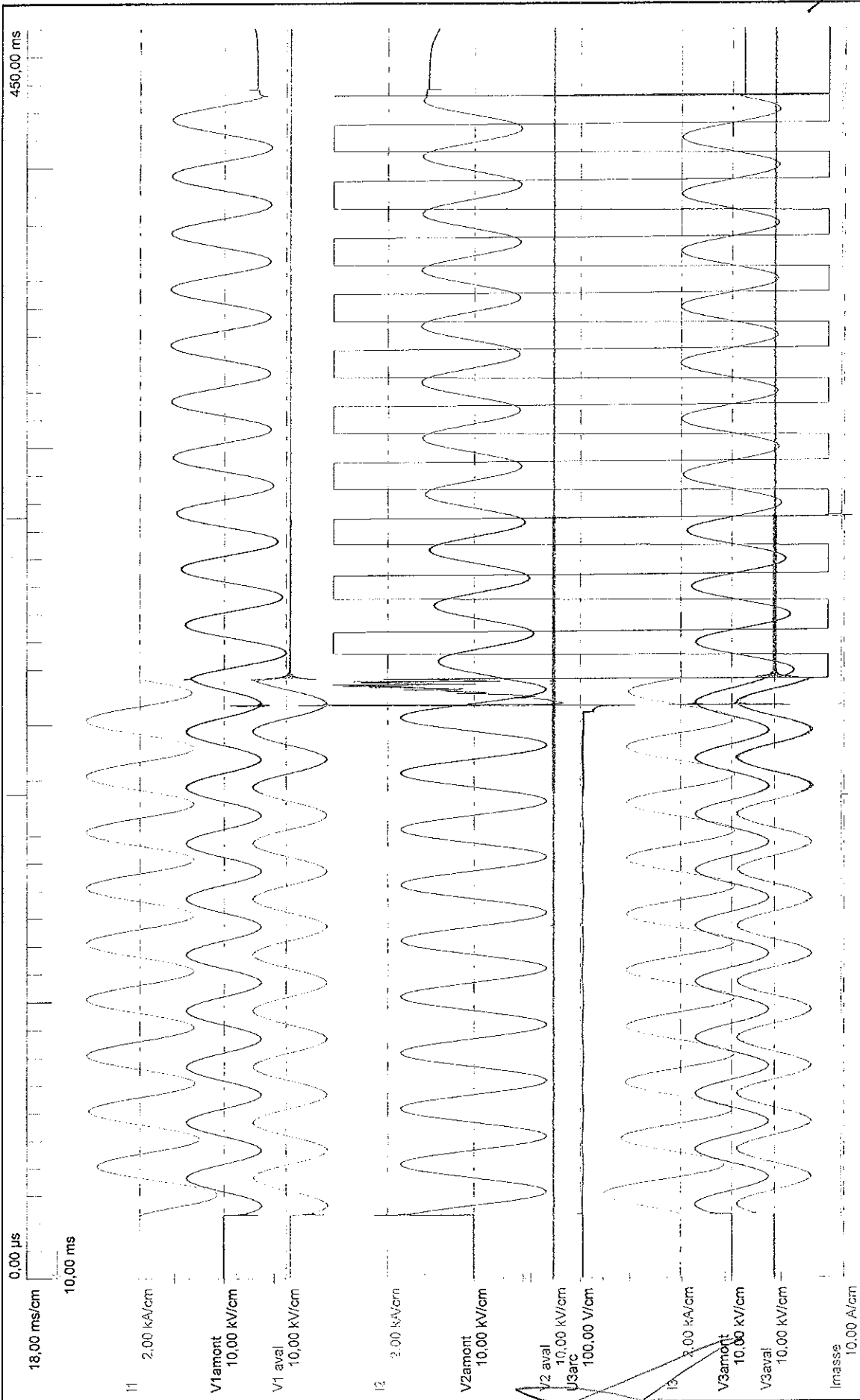
*S*

VOLTA 20020255 - 0011

Effectué le 04/12/2002 16:51:10  
Edité le 04/12/2002 19:14:17

1493

0011



3

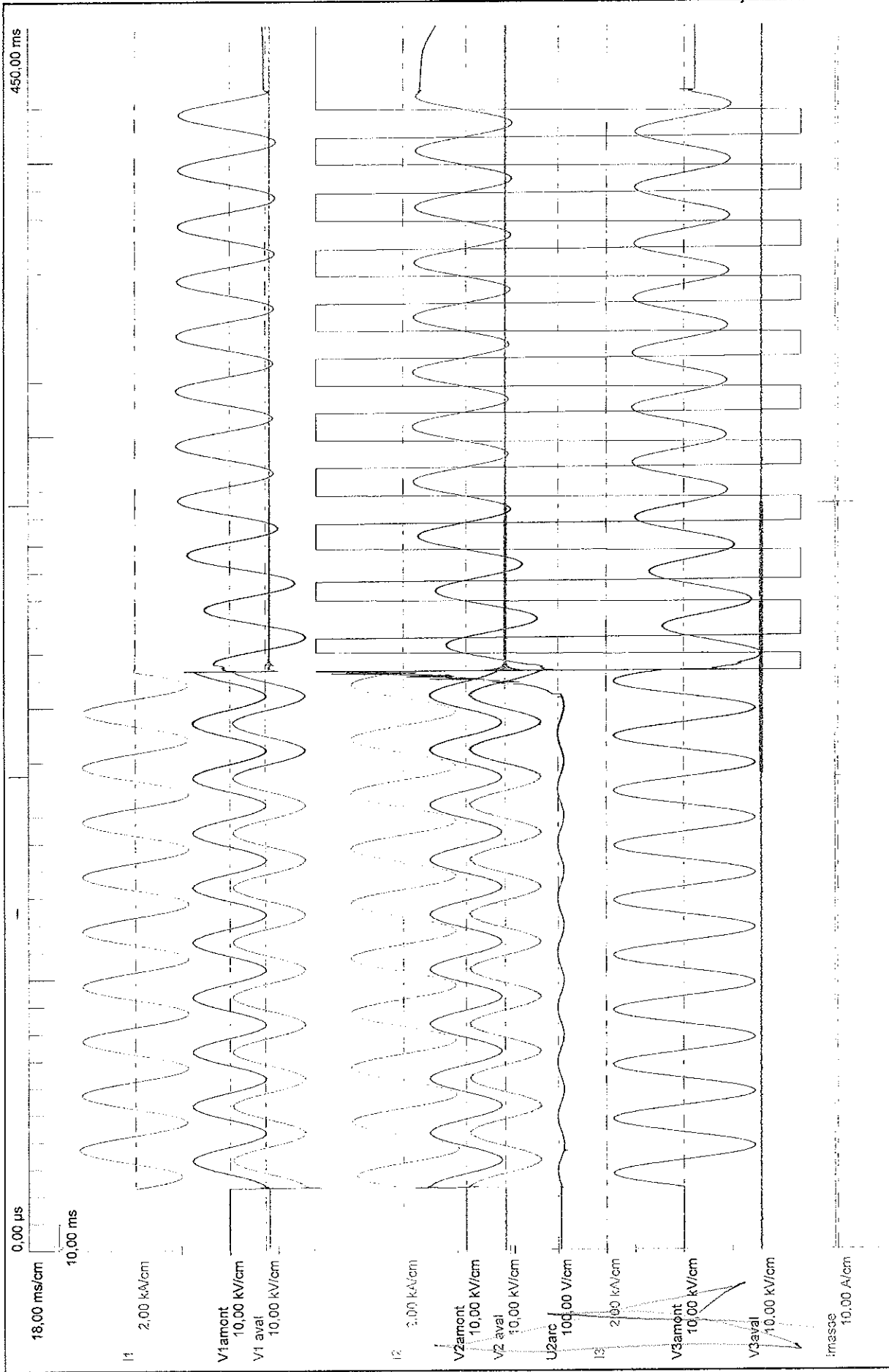
VOLTA 20020255 - 0012

Effectué le 04/12/2002 17:01:48  
Edité le 04/12/2002 19:15:05

✓

CATIE V.1.5.2.180 page 001

1494



Effectué le 04/12/2002 17:05:38  
Edité le 04/12/2002 19:15:45

VOLTA 20020255 - 0013

CATIE V.1.5.2.180 page 001

*S*

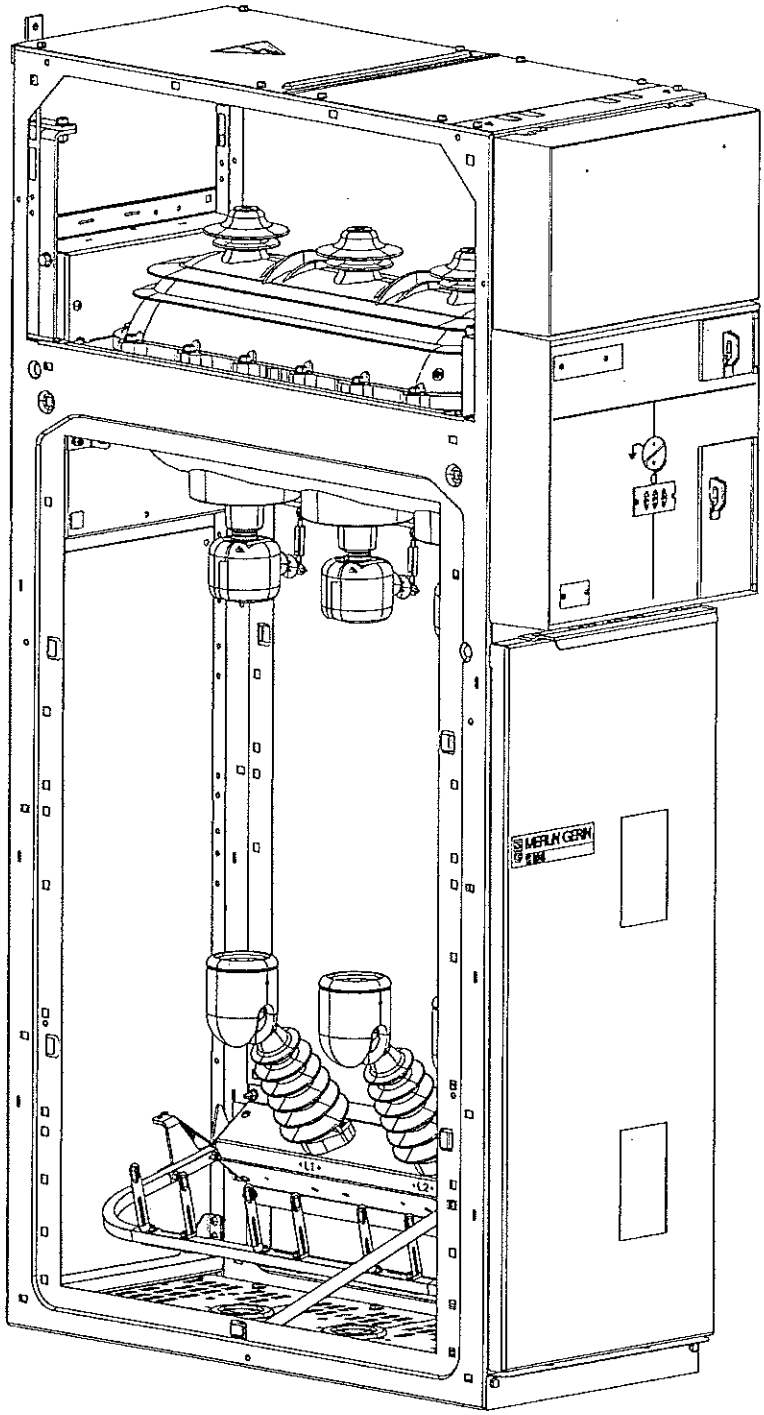
*8*

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Dessiné par <b>SCIASCIA</b>	Appareil/Device or equipment <b>SM6</b>
Unité/Issued by: <b>ST-DMT</b>	Ensemble/Assembly <b>CELLULE GM</b>
Code de diffusion Distribution code	PIECE/Part <b>CELLULES SM6</b>

MERLIN GERIN

3730457

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-	H
Page/ page 005/028	

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# Résultats d'essai

N volta QM

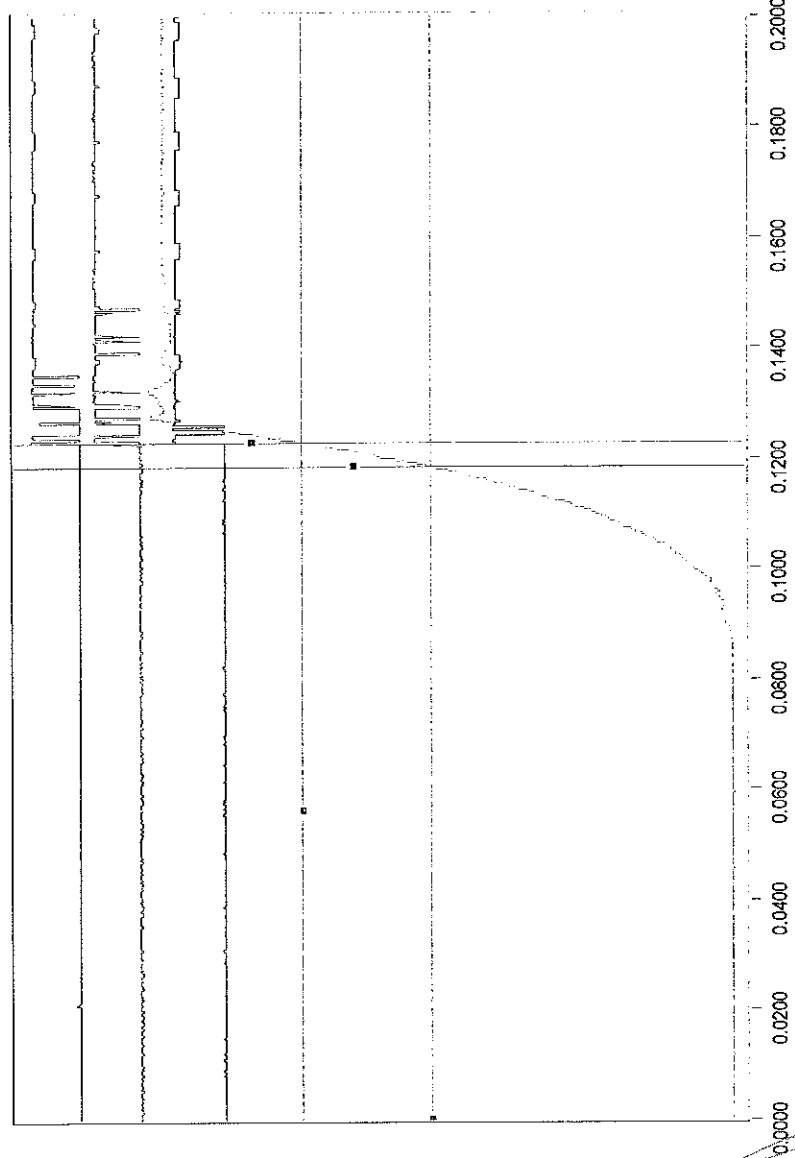
Cycles: 0

Oscillo: 4

Date: 29/11/2002

Commentaire

Cellule chine cde Q  
fermeture inter  
vitesse instantanée : 4.84 m/s  
vitesse moy/ 20mm : 4.58 m/s



Course de déplacement (mm)

0.000
28.57

mm/v

Ecart entre curseurs

V	0.699
mm	19.964
% course	Inf
dt (ms)	4.354

Vitesse (m/s)

4.586	
Vitesse Inst (m/s)	4.999

Top PH1 1.000 V/Div

Top PH2 1.000 V/Div

Top PH3 1.000 V/Div

Espace /tem 0.500 V/Div

Env+ Env-

Enveloppes

Déplacement?

ZOOM X 1

P.E.

Superposer le déplacement

WIPAC 000000

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1497

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# Résultats d'essai

N volta QM

Cycles: 0

Oscillo: 5

Date: 29/11/2002

## Commentaire

Cellule chine cde Q  
Ouverture infer  
vitesse moy/PO : 4.82 m/s  
vitesse moy/ 20mm : 4.16 m/s

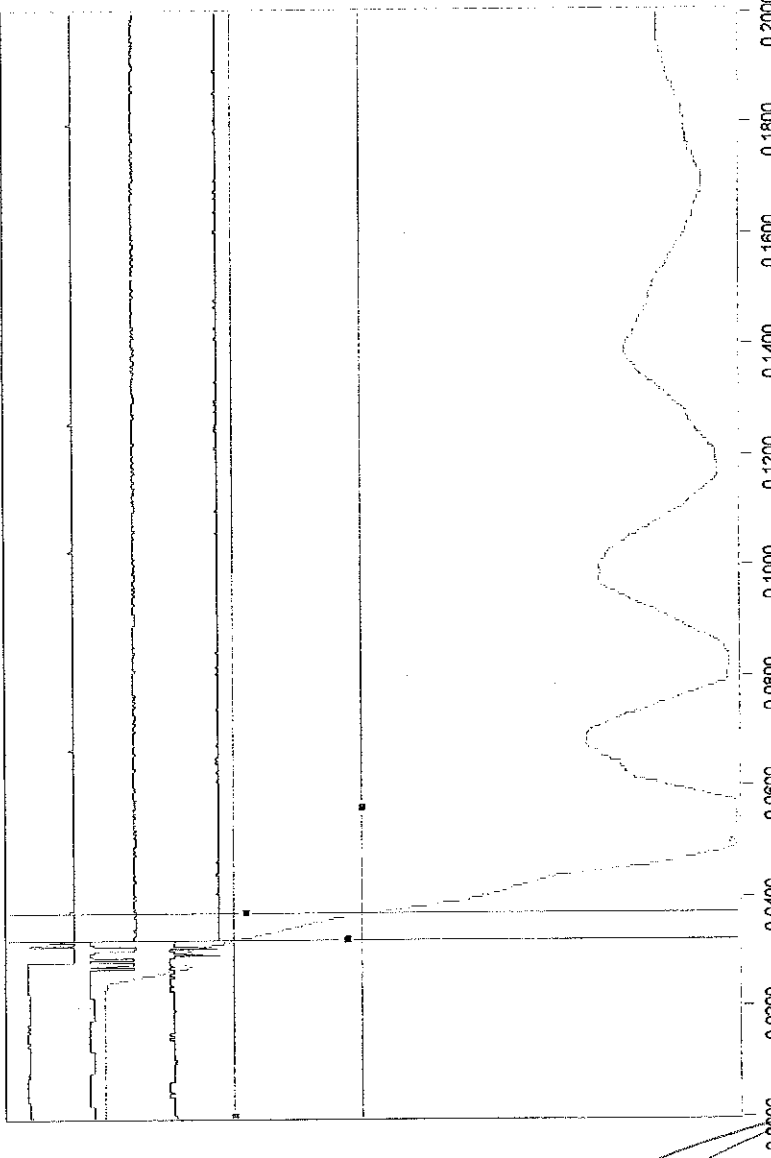
## Course de déplacement (mm)

0.000  
mm/v 28.57

## Ecart entre curseurs

V 0.705  
mm 20.142  
% course : Inf  
dt (ms) 4.841

Vitesse (m/s) 4.160  
Vitesse PO (m/s) 4.827



Top PH1 1,000 V/Div  
Top PH2 1,000 V/Div  
Top PH3 1,000 V/Div  
Espace /ternt 0,500 V/Div

Enveloppes

Envi+  
Envi-

Zoom X 1

P.E.

Superposer le déplacement

MONTAGNE  
9 000000

9

1498

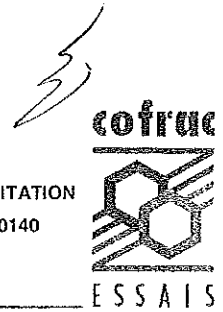
*[Handwritten signature]*

**L2E**  
**Volta**

51238847XB  
*Labor*  
*d'Exp* DMT20031202LMTAF  
**Dielectric Test Laboratory**  
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Fax: +33 (0)476 579 938

ACCREDITATION  
N° 1-0140



**TEST REPORT**

**DMT20031202LMTAF1**

page 1/20

**Delivered to** : TECHNICAL DEPARTEMENT DI PMT MERLIN GERIN 38V PLANT  
Z.I., CHAMP SAINT-ANGE, VARGES ALLIÈRES ET RISSET  
38050 GRENOBLE CEDEX 9

**Tested equipment** : SM6 CUBICLE

**Reference** : IMC - 24 kV - 630 A - 50/60 Hz

**Manufacturer** : SCHNEIDER ELECTRIC S.A. - DI PMT - FRANCE

**Purpose of tests** : PROVING OF THE DIELECTRIC WITHSTAND LEVEL  
according to IEC 62271-200 (2003-11)

**Tests performed** : according to IEC 60060-1 (1989-11), IEC 60694 (2002-01)  
standard for the following tests :  
  
TEST WITH LIGHTNING IMPULSE VOLTAGE IEC 62271-200 (2003-11) Sub-Clause 6.2

**In presence of** : M. CAILLET - ST SM6  
-  
-  
-

**Site of tests** : VOLTA - MV Dielectric Test Laboratory

**Date of tests** : the 2003/12/03

**The report contains** : 20 pages

**Date of issued** : January 28, 2004

REPRODUCTION  
INTERDITE

The performance of the apparatus tested and the results obtained are shown in the tables, oscillograms and photographs enclosed.  
The responsibility for conformity of any apparatus having the same designation with that tested rests with the manufacturer.  
This record of proving test shall only be reproduced in the complete form. The accreditation by the COFRAC Testing Section attests of the laboratory competence in the tests covered by the accreditation.

Test Manager

M. CHAVE

Technical Manager

E. FERNANDEZ

1499

**3. RATINGS OF THE SWITCHGEAR**

Apparatus : SM6 CUBICLE  
 - type : IMC  
 - manufacturing year : 2003  
 - number of poles : 3  
 Manufacturer : SCHNEIDER ELECTRIC S.A. - DI PMT - FRANCE  
 Rated voltage : 24 kV  
 Rated insulation level : 50/125 kV  
 Rated frequency : 50/60 Hz  
 Rated normal current : 630 A  
 Drawing of the switchgear n° : 3731372 rev. U page 3/12

**4. MOUNTING ARRANGEMENT**

The switchgear is in conformity with to the drawing n° 3731372 rev. U page 3/12, refer to page 19.  
 The switchgear is located at 7 m of the control room and at 1 m of the access door of the laboratory.  
 Refer to scheme page 17 for terminal identification.  
 Refer to pictures page 15.

**5. VALUES TO VERIFY**

according to IEC 60694 (2002-01)

**Rated voltage level** 24 kV

**Test with lightning impulse voltage**

To earth : 125kV 15 impulses ±  
 Across open switching device : 125kV 15 impulses ±

**6. ATMOSPHERIC CONDITIONS**

The correction factors K are calculated according to IEC 60060-1 (1989-11) Sub-Clause 11 standard.  
 Atmospheric conditions observed during the test :

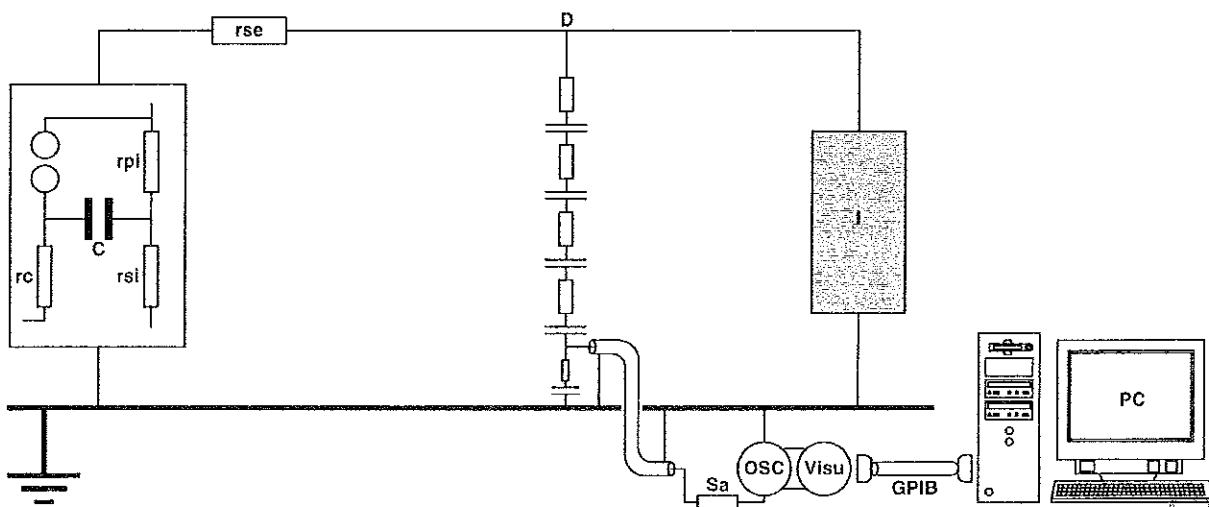
date	b : hPa	t : °C	tw : °C	Ub : kV	L : m	Hu : g/m <sup>3</sup>	K
03/12/2003	990	20	12.8	138	0.105	7.6	0.946

DPMT  
 OPERATEUR  
 03/12/2003

1500

## 7. TESTS CIRCUITS

### 7.1. LIGHTNING IMPULSE



Generator 8 stages 800kV 40kJ HAEFELY WO 514470

Values for each stage : C = 1,0 $\mu$ F, rc = 4,8k $\Omega$ , rpi = 68 $\Omega$ , rpi = 12 $\Omega$ , rse = 350 $\Omega$

D : Divider 800kV Ct = 670pF, Rt = 226,2 $\Omega$  HAEFELY WO 514470 n $^\circ$  CS800-670F

OSC : Transient analyser RTD 710A type TEKTRONIX n $^\circ$  AY102

Visu : Monitor 620 type (gauge) TEKTRONIX n $^\circ$  B036782

Sa : Probe 100x Z = 10M $\Omega$  P5100 type TEKTRONIX n $^\circ$  0004

PC : Computer + IC card GPIB NI-488-2 type

GPIB : Cable link GPIB IEEE-488

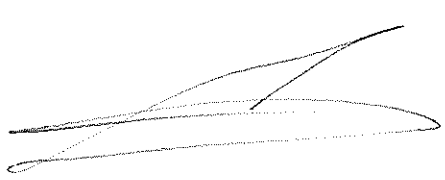
I : Test object

### Uncertainty of measuring chains

Lightning impulse voltage measured with D :

The uncertainty of the measure is  $\pm 3.38\%$  (estimated confidence level not less than 95%)

DMT20031202LMTAF1





1501



**8. TESTS PROCEDURES**

**8.1. APPLICATION OF TEST VOLTAGE**

**8.1.1. Switchgear closed**

Test to earth and between poles :

Voltage is applied to one pole, the frame and the other poles are earthed.

**8.1.2. Switchgear open**

Test to earth and across open switching device :

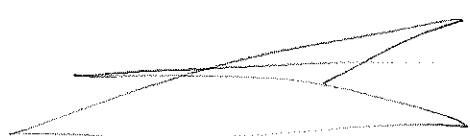
Voltage is applied successively to each terminal, the other terminal and the frame are earthed.

**8.2. TEST WITH LIGHTNING IMPULSE VOLTAGE**

Withstand voltage test :

15 impulses with the specified level are applied for both positive and negative polarities

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DIELECTRIC TEST LABORATORY



1502


**9. RESULTS**

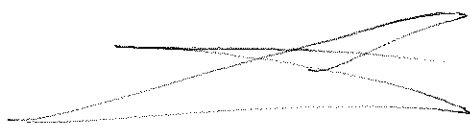
The annexes mentioned in the results tables are not systematically joined to the report. Nevertheless they can be consulted on request at the laboratory.

**9.1. TEST WITH LIGHTNING IMPULSE VOLTAGE**

Test condition	Earth connected to	Voltage applied to	pol.	Voltage applied KV	Correction factor		Results	Annex n°
					K	(1)		
open	FBCabc	A	pos.	100	0.946	AK	Waveform 1.27/ 49.99 µs	031016
open	FBCabc	A	pos.	125	0.946	AK	Withstood 15 Impulses	031025
open	FBCabc	A	neg.	100	0.946	AK	Waveform 1.28/ 49.17 µs	031029
open	FBCabc	A	neg.	125	0.946	AK	Withstood 15 Impulses	031043
open	FACabc	B	pos.	100	0.946	AK	Waveform 1.28/ 50.18 µs	031059
open	FACabc	B	pos.	125	0.946	AK	Withstood 15 Impulses	031116
open	FACabc	B	neg.	100	0.946	AK	Waveform 1.28/ 49.14 µs	031117
open	FACabc	B	neg.	125	0.946	AK	Withstood 15 Impulses	031127
open	FABabc	C	pos.	100	0.946	AK	Waveform 1.28/ 50.43 µs	031130
open	FABabc	C	pos.	125	0.946	AK	Withstood 15 Impulses	031139
open	FABabc	C	neg.	100	0.946	AK	Waveform 1.28/ 49.32 µs	031141
open	FABabc	C	neg.	125	0.946	AK	Withstood 15 Impulses	031151
open	FABCbc	a	pos.	100	0.946	AK	Waveform 1.13/ 49.45 µs	031314
open	FABCbc	a	pos.	125	0.946	AK	Withstood 15 Impulses	031326
open	FABCbc	a	neg.	100	0.946	AK	Waveform 1.12/ 48.54 µs	031313
open	FABCbc	a	neg.	125	0.946	AK	Withstood 15 Impulses	031336
open	FABCac	b	pos.	100	0.946	AK	Waveform 1.23/ 49.87 µs	031345
open	FABCac	b	pos.	125	0.946	AK	Withstood 15 Impulses	031354
open	FABCac	b	neg.	100	0.946	AK	Waveform 1.23/ 49.13 µs	031356
open	FABCac	b	neg.	125	0.946	AK	Withstood 15 Impulses	031405

 031016  
 031025  
 031029  
 031043  
 031059  
 031116  
 031117  
 031127  
 031130  
 031139  
 031141  
 031151  
 031314  
 031326  
 031313  
 031336  
 031345  
 031354  
 031356  
 031405

(1) **A** = The correction factor K has been Applied      **NA** = The correction factor K has Not been Applied  
**AK** = The correction factor K = 0.950 has been Applied (IEC 60694 2002-01)



1503

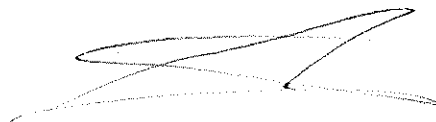


**9.1. TEST WITH LIGHTNING IMPULSE VOLTAGE (CONTINUATION)**

Test condition	Earth connected to	Voltage applied to	pol.	Voltage applied KV	Correction factor		Results	Annex n°
					K	(1)		
closed closed	FAaCc	Bb	pos.	100	0.946	AK	Waveform 1.24/ 49.93 µs	031438
	FAaCc	Bb	pos.	125	0.946	AK	Withstood 15 Impulses	031448
closed closed	FAaCc	Bb	neg.	100	0.946	AK	Waveform 1.24/ 49.00 µs	031450
	FAaCc	Bb	neg.	125	0.946	AK	Withstood 15 Impulses	031500
closed closed	FBbCc	Aa	pos.	100	0.946	AK	Waveform 1.23/ 49.87 µs	031506
	FBbCc	Aa	pos.	125	0.946	AK	Withstood 15 Impulses	031524
closed closed	FBbCc	Aa	neg.	100	0.946	AK	Waveform 1.22/ 48.97 µs	031525
	FBbCc	Aa	neg.	125	0.946	AK	Withstood 15 Impulses	031535
closed closed	FAaBb	Cc	pos.	100	0.946	AK	Waveform 1.24/ 49.99 µs	031548
	FAaBb	Cc	pos.	125	0.946	AK	Withstood 15 Impulses	031557
closed closed	FAaBb	Cc	neg.	100	0.946	AK	Waveform 1.24/ 49.20 µs	031558
	FAaBb	Cc	neg.	125	0.946	AK	Withstood 15 Impulses	031611
open open	FABCab	c	pos.	100	0.946	AK	Waveform 1.23/ 50.24 µs	031411
	FABCab	c	pos.	125	0.946	AK	Withstood 15 Impulses	031625
open open	FABCab	c	neg.	100	0.946	AK	Waveform 1.22/ 49.11 µs	031627
	FABCab	c	neg.	125	0.946	AK	Withstood 15 Impulses	031638

- (1) A = The correction factor K has been Applied      NA = The correction factor K has Not been Applied  
 AK = The correction factor K = 0.950 has been Applied (IEC 60694 2002-01)

031611  
 031625  
 031627  
 031638

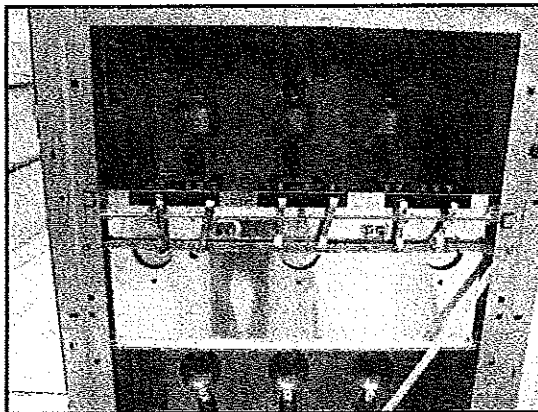
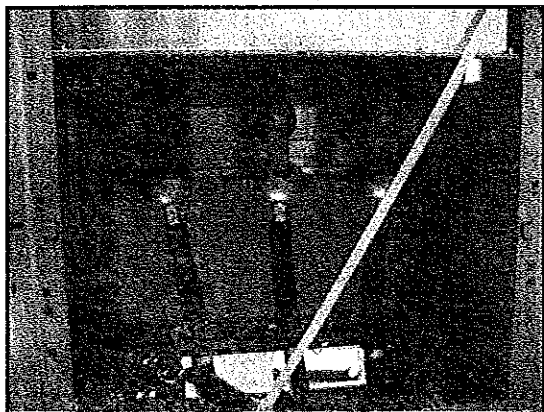
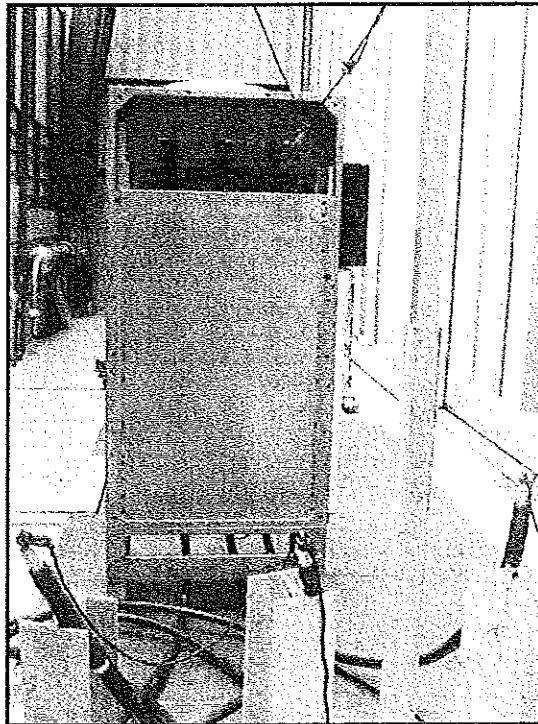
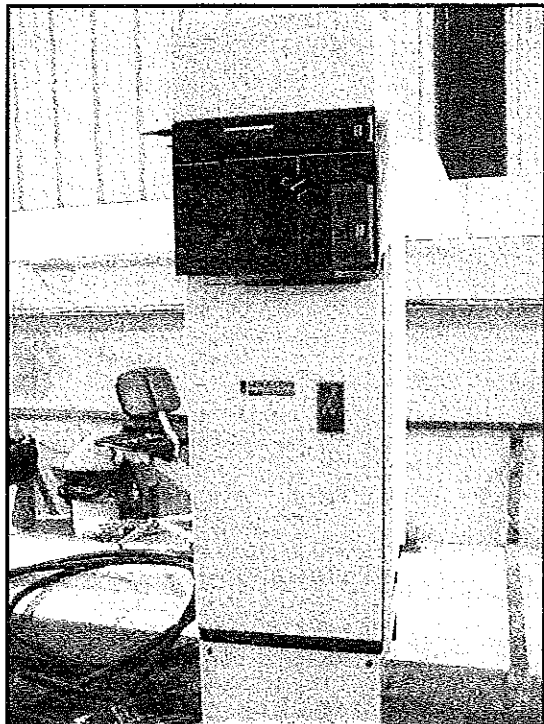



1504

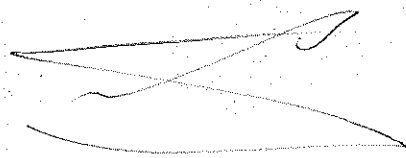


## SM6 Cubicle IMC Type 24 kV

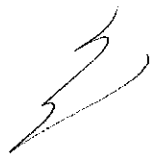
### Test photographies



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01/01/2003

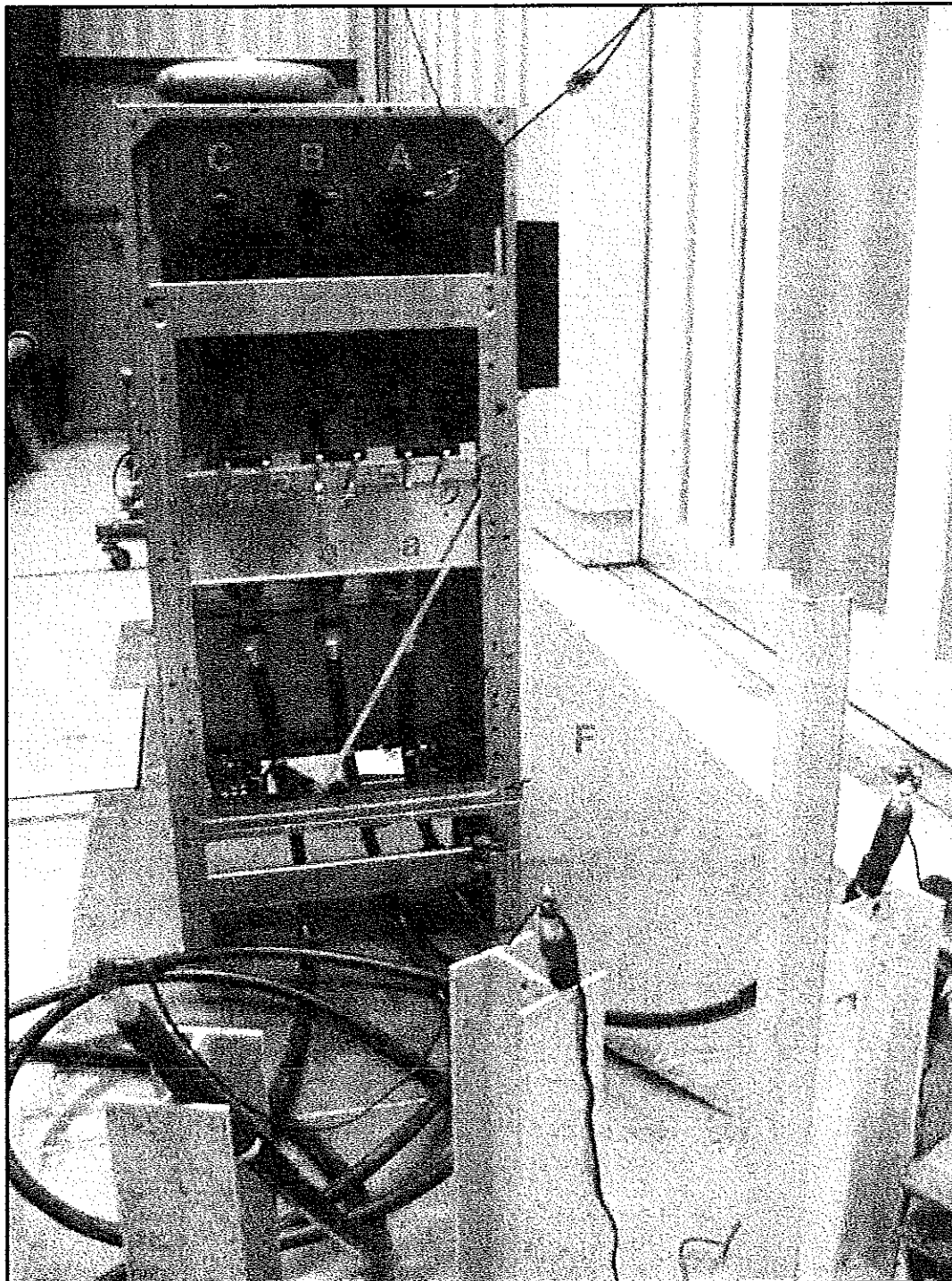


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1505



SM6 Cubicle IMC Type 24 kV

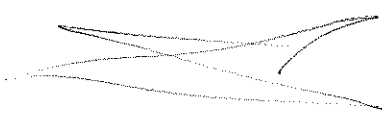
Terminal identification



REPRODUCTION  
INTERDITE



1506



L2E

Laboratoire  
d'Essais et d'Essais

**Volta**

Station d'Essais à Grande Puissance  
High Power Testing Station  
Laboratoire d'Essais Diélectriques  
Dielectric Test Laboratory

Adresse postale :  
postal address :  
VOLTA 2, rue Volta F- 38050 Grenoble Cedex 9  
Tél. : Tel. : +33 (0) 478 579 143  
Fax. : Fax. : +33 (0) 478 579 938

Messieurs,

Nous vous confirmons que VOLTA est totalement indépendant de toute unité opérationnelle du groupe Schneider Electric.

**Pour les essais d'appareils à basse tension :**

VOLTA est membre de :

- ASEFA (Association de Stations d'Essais Françaises d'Appareils électriques) affilié à
- CERTIFELEC (Association pour la certification de produits électriques industriels) et au
- LOVAG (LOW Voltage AGREement : Organisme Européen d'accréditation).

Le laboratoire est accrédité par COFRAC - section Essais (COMité FRançais d'ACcréditation).

Il est qualifié par les UL et CSA dans le cadre de la certification partagée.

**Pour les essais d'appareils à moyenne et haute tensions :**

VOLTA est membre de :

- ESEF (Ensemble des Stations d'Essais à grande puissance Françaises) affilié à
- CERTIFELEC (Association pour la certification de produits électriques industriels) et au
- STL (Short-circuit Testing Liaison) association internationale de collaboration entre principaux organismes d'essais.

Il est accrédité par COFRAC - section Essais (COMité FRançais d'ACcréditation).

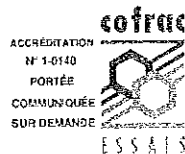
Les objectifs de l'ASEFA, du LOVAG, de l' ESEF et du STL sont d'harmoniser les procédures d'essais entre stations d'essais et d'établir des certificats de conformité.

Les essais sont effectués dans notre laboratoire, conformément aux directives de l'ASEFA, de l' ESEF, du COFRAC, du LOVAG et du STL, aussi bien pour le compte des unités du groupe Schneider Electric que pour d'autres sociétés françaises ou étrangères.

Sincères salutations.

Le Responsable de Volta

J.F. REY



Dear Sirs

We confirm that VOLTA is independent from any division in Schneider Electric Company.

**For low-voltage apparatus testing :**

VOLTA is member of :

- ASEFA (Association de Stations d'Essais Françaises d'Appareils électriques : Association of French testing stations of electrical apparatus) affiliated to
- CERTIFELEC (Association for certification of industrial electrical apparatus) and to
- LOVAG (LOW Voltage AGREement : European Certification organization).

The laboratory is accredited by COFRAC - section Essais (French Certification organization).

It is qualified by UL and CSA as part of the shared certification.

**For medium and high voltages apparatus testing :**

VOLTA is member of :

- ESEF (Union of French Testing Stations) affiliated to
- CERTIFELEC (Association for certification of industrial electrical apparatus) and to
- STL (Short-circuit Testing Liaison) an international association for cooperation between main testing organizations.

It is accredited by COFRAC - section Essais (French Certification organization).

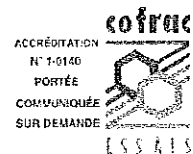
The objectives of ASEFA, LOVAG, ESEF and STL are to harmonize test methods and to validate test certifications.

Tests are carried out by our laboratory according to ASEFA, ESEF, COFRAC, LOVAG and STL guides on behalf of Schneider Electric divisions and other French and foreign companies.

Yours faithfully,

VOLTA Responsible

J.F. REY



COFRAC  
ACCREDITATION  
N° 1-0140  
PORTÉE  
COMMUNIQUÉE  
SUR DEMANDE  
ESSAIS

1507

**Volta**

centre d'essais  
station d'essais à  
38050 Grenoble

**51238866XB**

**A2005-0477-00**

ACCREDITATION  
N° 1-0140

**cofrac**  
  
ESSAIS

## TEST REPORT No. A2005-0477-00

**Apparatus** : *Metal-enclosed switchgear*  
**Designation** : *MERLIN GERIN Cubicle SM6 type IM 500 + IM 375 with exhaust by the top*  
*Rated voltage 24 kV - Rated normal current 630 A - Rated frequency 50/60 Hz*  
**Manufacturer** : *SCHNEIDER ELECTRIC INDUSTRIES SAS - Rueil-Malmaison - FRANCE*  
**Object** : *Arcing test due to internal fault rated at:*  
*- 16 kA - 1 s - three-phase*  
*- in the switch of the IM 375 cubicle*

**Tested for** : *SCHNEIDER ELECTRIC*  
**Date(s) of tests** : *04/07/2005*  
**Test laboratory** : *VOLTA - 38050 Grenoble - FRANCE*

These tests were carried out in accordance with : **Standard IEC 62271-200 (2003) Annex A**

The performance of the apparatus tested and the results obtained are shown in the tables, oscillograms and photographs enclosed.  
The responsibility for conformity of any apparatus having the same designation with that tested rests with the Manufacturer.

The documents forming part of this report are :

Ratings of the apparatus	3 page(s)
Record of proving tests	1 page(s)
Conditions of proving tests	5 page(s)
Test result tables	2 page(s)
Photographs	2 page(s)
Oscillograms	1 page(s)
Drawings of the apparatus	1 page(s)

The test report comprises 16 pages

This record of proving test shall only be reproduced in the complete form.

The accreditation by the COFRAC Testing section attests of the laboratory competence in the tests covered by the accreditation.

Grenoble 19/01/2006

Technical Manager

Test Manager

R.ARNOULD

B.BELLIA

RECEIVED  
04/07/2005  
VOLTA



1508

# Volta

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F-38050 Grenoble cedex 9

No. A2005-0477-00

page 2

C62271-200-A/a

## RATINGS OF THE METAL-ENCLOSED SWITCHGEAR ACCORDING TO IEC 62271-200

Manufacturer	: SCHNEIDER ELECTRIC INDUSTRIES SAS
Designation	: MERLIN GERIN Cubicles SM6 type IM 500 + IM 375
Number of phases	: 3
Voltage	kV : 24
Power frequency withstand voltage (1 min)	
- to earth and between poles	kV : 50
- accross the isolating distance	kV : 60
Lightning impulse withstand voltage	
- to earth and between poles	kV peak : 125
- accross the isolating distance	kV peak : 145
Frequency	Hz : 50/60
Normal current	A : 630
Peak withstand current	kA : 40
Short-time withstand current (duration)	
- main circuit	kA : 16 (1 s)
- earthing switch	kA : 16 (1 s)
- earth bar	kA : 16 (1 s)
Arcing withstand due to an internal fault	kA : 16
- duration	s : 1
- IAC classification	: AFLR
Degree of protection	: IP2XC
Dimensions (H x W x D)	mm : /
Weight	kg : /
Drawing(s) No.	: 51238212 F0 - G0 folio 46/001

Metal-enclosed switchgear equipped with : 1 cubicle IM 500  
1 cubicle IM 375

WITTEKAMP  
DIPLOM  
G 011158

1509

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No. A2005-0477-00

page 3

C265-A/b

## RATINGS OF THE HV SWITCH ACCORDING TO IEC 60265-1

Manufacturer	: SCHNEIDER ELECTRIC INDUSTRIES SAS
Designation	: MERLIN GERIN Cubicles SM6 type IM 500 + IM 375
Increased operating frequency switch	: ■■ other :
Installation	indoor : ■■ outdoor :
Interrupting medium	gas SF6 : ■■ other :
Absolute pressure at 20 °C	bar : 1.4
Number of poles	: 3
Voltage	kV : 24
Power frequency withstand voltage (1 min)	kV : 50
Lightning impulse withstand voltage	kV peak : 125
Frequency	Hz : 50/60
Normal current	A : 630
Peak withstand current	kA : 40
Short-time withstand current - duration	kA : 16 s : 1
Breaking capacity	
- mainly active load	A : 630
- no-load transformer	A : 1 < 1 et 2 < 1 < 5
- closed loop	A : 630
- cable-charging	A : 31.5
- line-charging	A : /
- earth-fault	A : 95
- cable-charging under earth-fault conditions	A : 55
Short-circuit making current	kA peak : 40
Number of operations with mainly active load	100
Mechanical endurance	operating cycles : 1000
Operating temperature	minimum °C : - 5 maximum °C : + 40
Degree of protection	: IP2XC
Drawing(s) No.	: /

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No. A2005-0477-00

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C62271-102T-A/a

## RATINGS OF THE EARTHING SWITCH ACCORDING TO IEC 62271-102

Manufacturer	: SCHNEIDER ELECTRIC INDUSTRIES SAS		
Designation	: MERLIN GERIN		
Installation	indoor :	■ ■	
	outdoor :		
Method of closing	manual :	■ ■	
	electrical :		
Method of opening	manual :	■ ■	
	electrical :		
Number of poles	: 3		
Voltage	kV : 24		
Power frequency withstand voltage			
- to earth and between poles	.1 min	kV : 50	
	.1 min wet	kV : /	
Lightning impulse withstand voltage			
- to earth and between poles	kV peak : 125		
Switching impulse withstand voltage			
- class for U = 300 kV (A or B)	: /		
- to earth	kV peak : /		
Frequency	Hz : 50/60		
Peak withstand current	kA : 40		
Short-time withstand current	kA : 16		
- duration	s : 1		
Short-circuit making current	kA peak : 40		
Supply voltage	- control motor	Vac : /	
	- closing mechanism	Vac : /	
	- opening mechanism	Vac : /	
Operating mechanism supply pressure	bar gauge : /		
Contact zone	m : L = / ; S = / ; U = /		
Mechanical	- straight load	N : /	
terminal load	- cross-load	N : /	
Control mechanism type	: CI1		
Drawing(s) No.	: /		

Original  
No. 0477-00

1511A



# Volta

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station d'essais à grande puissance  
F-38050 Grenoble cedex 9

No. A2005-0477-00

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LH1-A/a

## RECORD OF PROVING TESTS

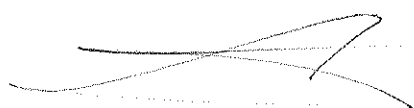
Apparatus No. : /

Test type and test-duty	Page
- Arcing test due to internal fault at: 16.5 kA - 1 s - three-phase in the switch of the IM 375 cubicle	11

Manufacturer  
Representative(s)

: Mr. SONZOGNI Jean-Louis  
Mr. MESTRALLET Serge

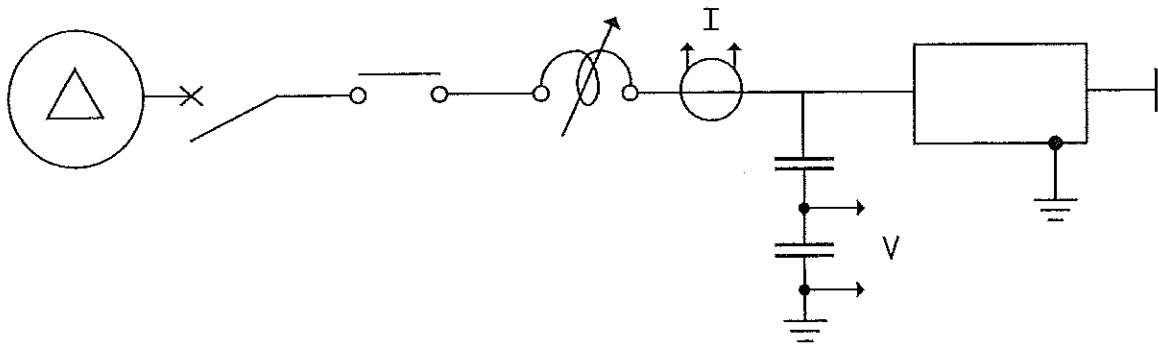
SCHNEIDER ELECTRIC  
SCHNEIDER ELECTRIC



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## TEST CIRCUIT

<u>alternateur</u>	<u>disjoncteur</u>	<u>enclencheur</u>	<u>élément de réglage</u>	<u>appareil en essai</u>
alternator	de protection	making switch	adjustable circuit	apparatus under test
	protection			
	circuit-breaker			



## CONDITIONS OF PROVING TESTS

### SUPPLY

Copper bar  
Aluminium cable  
Copper cable  
Number per phase

mm x mm :  
mm<sup>2</sup> : 240  
mm<sup>2</sup> :  
: 1

### INDICATORS IN BLACK CRETONNE

Cotton fabric  
Black cotton-interlining lawn  
No indicators

150 g/m<sup>2</sup> : ■■  
40 g/m<sup>2</sup> :  
:

### RELATIVE PRESSURE INSIDE POLES

Pole 1  
Pole 2  
Pole 3

bar : Air at 0.4 bar  
bar : Air at 0.4 bar  
bar : Air at 0.4 bar

Arc initiated between phases by means of a metal wire of 0.5 mm diameter.

Functional unit under test : IM 375

### CONDITIONS OF INSTALLATION

See page(s) : 7 to 9

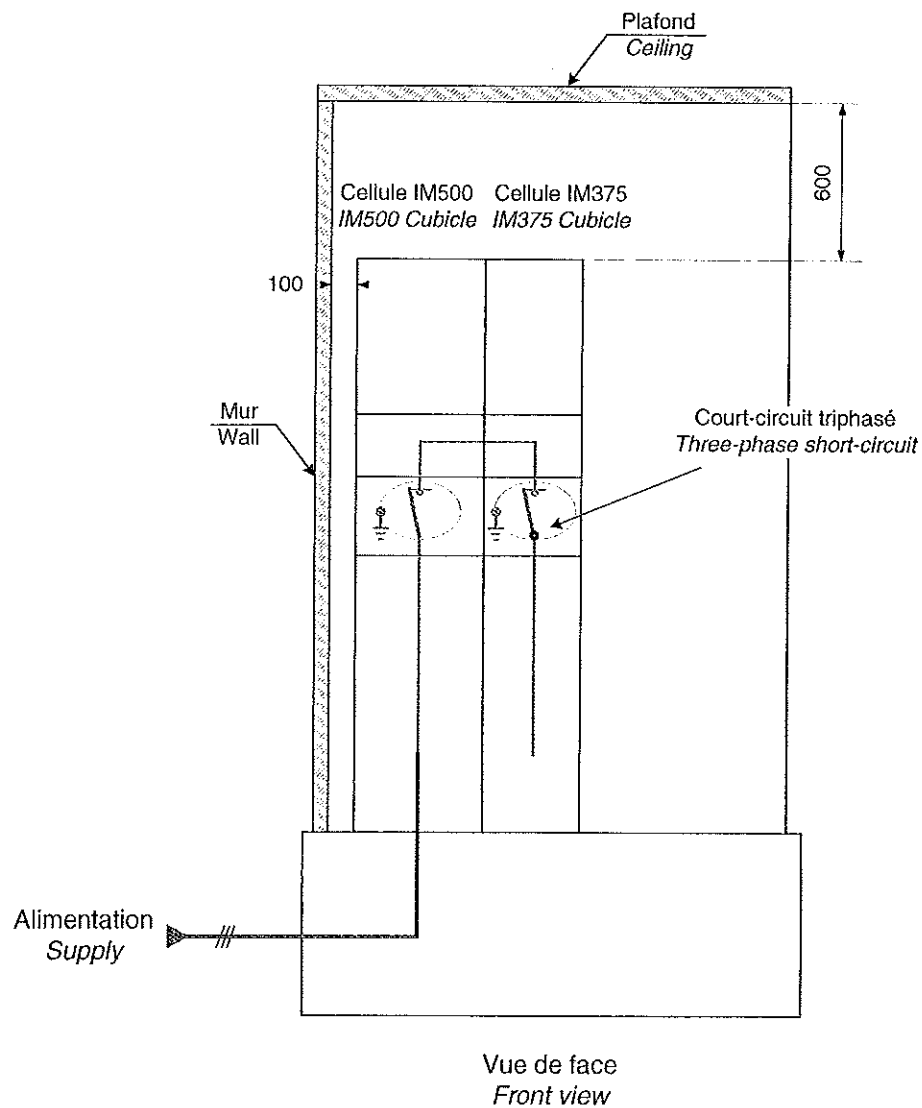
WILSON & CO  
0 01111

*g*

*[Handwritten signature]*

*1573*

## CONDITIONS OF PROVING TESTS



- Switch of cubicle IM 500 : Closed
- Switch of cubicle IM 375 : Closed
- No cables connected output.

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