ASTA

CERTIFICATE OF SELECTED TYPE TESTS

Laboratory Ref. No: **3096.2081034.1153** **Certificate No.** 17232

APPARATUS: 630 A / 400 V / 690 V (I_n / U_e / U_i), Low-voltage cable distribution cabinet with six NH2 fuse-switch-disconnectors in rail design

DESIGNATION: 88S1700K

MANUFACTURER: GSAB Elektrotechnik GmbH
Lindenstraße 23
99718 Greußen
GERMANY

TESTED BY: Institut „Prüffeld für elektrische Hochleistungstechnik" GmbH
Landsberger Allee 378 A
12681 Berlin
GERMANY

DATE(S) OF TESTS: 14 to 20 October 2008 and 27 February 2009

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with:

IEC 60439-1: 2004-04, Sub-clauses 8.2.1, 8.2.2, 8.2.3, 8.2.4.2, 8.2.5, 8.2.7 and 8.2.9

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performance are considered to comply with the above Standard(s) and to justify the ratings assigned by the manufacturer as stated below.

For ratings assigned by the manufacturer and proved by test see Page 1.

The record of Proving Tests applies only to the apparatus tested. The responsibility for conformity of any apparatus having the same designations with that tested rests with the Manufacturer.

This Certificate comprises 41 pages, 4 diagrams, 7 oscillograms, 11 photographs, 2 drawings and no other sheets.

UKAS PRODUCT CERTIFICATION
010

J. Haring — **ASTA Observer J. Haring**

P. Gibbons — **Certification Manager**

14TH September 2009 — **Date**

RATINGS ASSIGNED BY THE MANUFACTURER AND PROVED BY TEST:

Temperature-rise limits (Sub-clause 8.2.1)

Test using current on all apparatus (Sub-clause 8.2.1.3)

Main busbar L1/L2/L3 1 x 30 mm x 10 mm bare copper	: 630 A, 3-phase, 50 Hz
Outgoing circuits 1 to 3, strip-type fuse-switch	: 175 A, 3-phase, 50 Hz
Outgoing circuit 4, strip-type fuse-switch	: 105 A, 3-phase, 50 Hz
Rated diversity factor	: 0.7

Dielectric properties (Sub-clause 8.2.2)

Power frequency voltage withstand test (Sub-clause 8.2.2.4)

Rated insulation voltage	: U_i = 690 V, verified

Short-circuit withstand strength (Sub-clause 8.2.3

Rated peak and short-time withstand current (Sub-clause 8.2.3.2.3 b), d)

Verification of short-circuit withstand strength of the main busbar (1 x 30 mm x 10 mm)	: 3-phase 25 kA for 1 s, 52.5 kA peak

Rated conditional short-circuit current (Sub-clause 8.2.3.2.3 a)

Verification of conditional short-circuit withstand strength of outgoing circuits 1 and 6	: 3-phase 25.7 kA (55.3 kA peak) at 450 V
	: Power factor 0.22

Effectiveness of the protective circuit (Sub-clause 8.2.4)

Short-circuit withstand strength of the protective circuit (Sub-clause 8.2.4.2)

Verification of the short-circuit withstand strength of the main protective conductor (PEN bar 1 x 30 mm x 10 mm)	: 1-phase 16.1 kA for 1 s, 34 kA peak

Clearances and creepage distances (Sub-clause 8.2.5)

Min. clearance ≥ 5.5 mm	: Verified
Min. creepage distance ≥ 12.5 mm	: Verified
(Degree of pollution 3 and material group III)	

Verification of the degree of protection (Sub-clause 8.2.7)

IP44	: Verified

Verification of the resistance of insulating materials to abnormal heat and fire (Sub-clause 8.2.9)

Glow-wire test	: Verified

J. Haring

J. Haring
ASTA Observer

THE TEST EXPERTS · SERVICES FOR THE WORLD OF ENERGY

IPH BERLIN

The testing was carried out by IPH.

The accreditation details of IPH are:

Deutscher Akkreditierungs Rat DAR	IPH is accredited to DIN EN ISO/IEC 17025 by the German Accreditation Body Technology (DATech)
ACCREDITED LABORATORY ASA REG. No. 5145	IPH is accredited to BS EN ISO/IEC 17025 and ASTA Publication No. 31 by ASTA BEAB
IEC IECEE	IPH is entitled to operate as German CBTL within the IECEE CB Scheme
ALPHA	IPH is listed in the ALPHA and LOVAG register of approved test laboratories
PEHLA	IPH is a member of PEHLA (Association for Electrical High-Power Testing) and an associated member of STL

IPH is Service Provider for:
All partners of electric power industry – Manufacturers, Users, Certifiers
IPH is active in the fields of:
Testing, Measurement, Witnessing, Diagnosis, Monitoring, Calibration, Pre-qualification, Expert advice, Training

IPH „Institut Prüffeld für elektrische Hochleistungstechnik“ GmbH, Germany
Landsberger Allee 378 A, D-12681 Berlin, Internet: www.IPH.de

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1. Present at the test

Mr.	Haring	ASTA Observer
Mr.	Rainer Borchert	IPH test engineer in charge
Mr.	Juraschek	IPH test engineer
Mr.	Manthe	IPH test engineer
Mr.	Vonnoe	GSAB Elektrotechnik GmbH

2. Identity of the test object

2.1 Technical data and characteristics

The technical data and characteristics of the test object are defined by the following parameters and specified by the client.

Clients order No.:	88S / 11 November 2008		
Test object:	630 A / 400 V / 690 V (I_n / U_e / U_i), Low-voltage cable distribution cabinet with six NH2 fuse-switch-disconnector in rail design		
Type:	88S1700 K		
Manufacturer:	GSAB Elektrotechnik GmbH		
Serial No.:	Test sample		
Year of manufacture:	2008		
Rated characteristics:	Rated operational voltage	400	V
	Rated insulation voltage	690	V
	Rated frequency	50	Hz
	Rated current	630	A
	Rated short-time withstand current	25	kA, 1 s
	Rated peak withstand current	52.5	kA
	Degree of protection	IP44	
	Class of protection	II	
Characteristics:	Dimensions (W x D x H)	883 mm x 272 mm x 1345 mm	
	Busbars L1/L2/L3		
	Dimensions	1 x 30 mm x 10 mm per pole	
	Design	Cu, bare, rounded	
	Busbars PEN		
	Dimensions	1 x 30 mm x 10 mm	
	Design	Cu, bare, rounded	
	Strip-type fuse-switches		
	Number	6 pc	
	Type	NH2	
	Fuses in the outgoing circuits 1 and 2		
	Size	NH2	
	Rated voltage	500 V	
	Rated current	250 A	
	Utilisation category	gL/gG	
	Manufacturer	Jean Müller	
	Fuses in the outgoing circuits 3 and 4		
	Size	NH2	
	Rated voltage	500 V	
	Rated current	250 A	
	Utilisation category	gL/gG	
	Manufacturer	Ebamat	
	Fuses in the outgoing circuits 5 and 6		
	Size	NH2	
	Rated voltage	690 V	
	Rated current	125 A	
	Utilisation category	gL/gG	
	Manufacturer	M. Schneider	
	Insulating medium	Air	
	Type of arrangement	External area	
	Material of casing	glass-fibre-reinforced polyester	

2.2 Identity documents

The manufacturer confirms that the test object has been manufactured in compliance with the drawings given in this document. IPH have verified that the drawings submitted by the client and detailed in this test report represent the apparatus tested in all essential details with respect of the characteristics to be proven by the tests.
The identity of the test object is fixed by the following drawings and data submitted by the client.

Name of drawing	Drawing No.	Date of drawing	Author	Notes
Kabelverteiler mit 6 Stück Sicherungslastschaltleisten Typ 88S1700 K Front- und Seitenansicht	88S1700 Sheet 1	07.01.2008	GSAB Elektrotechnik GmbH	Sheet 40
Kabelverteiler mit 6 Stück Sicherungslastschaltleisten Typ 88S1700 K Stromlaufplan	--	15.07.2008	GSAB Elektrotechnik GmbH	Sheet 41

Entry of test objects at IPH: 10 October 2008

3. Verification of temperature-rise limits

3.1 Test laboratory

Low-voltage test laboratory, test room 10

3.2 Normative document

IEC 60439-1: 2004-04, Sub-clause 8.2.1

3.3 Required test parameters

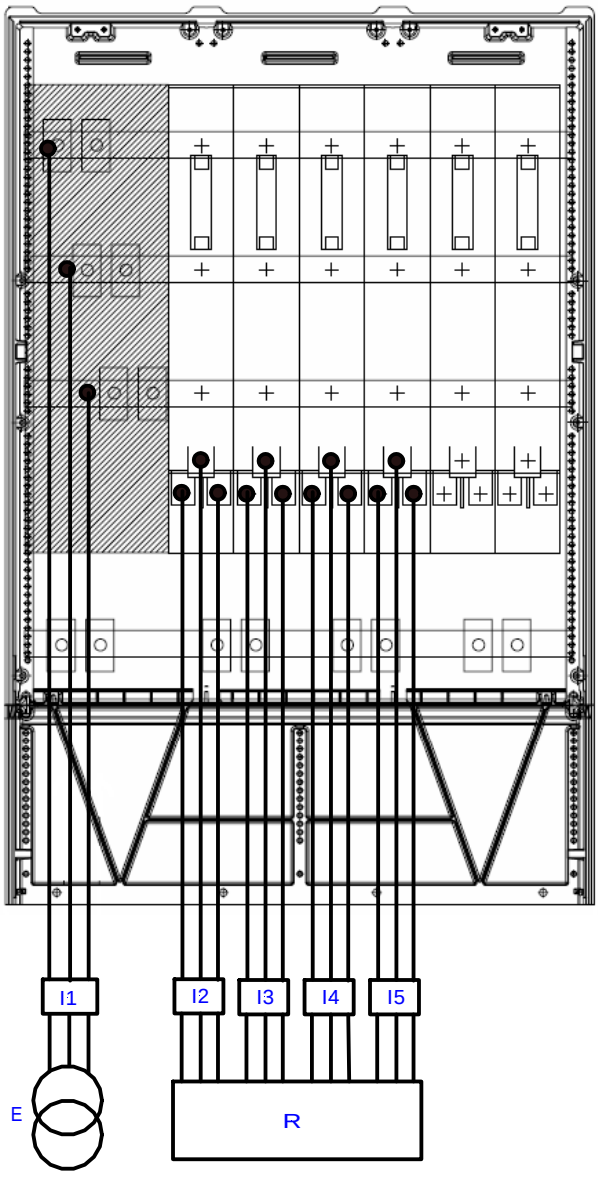
Terminal	Current (three-phase) in A	Frequency in Hz
Supply	630	50
Outgoing circuits 1 to 3	175	
Outgoing circuit 4	105	

3.4 Test arrangement

The power supply was realised by two single-core 185 mm^2 cables per each pole, and the connection of the outgoing circuits by one single-core 120 mm^2 cable per each pole.
The cables for the power supply and for the outgoing circuits were installed from the bottom. The test sample was put on a wooden frame approximately 5 cm high. The spacing was sealed hermetically.

The rear wall of the test sample was insulated with expanded polystyrene slabs having a thickness of 30 mm.

3.5 Test and measuring circuits



E Test current source
R Load resistors
I1 to I5 Current measurement

Diagram 1: Diagram of test arrangement

Measuring point	Measured quantity	Measuring sensor/device
I1	Test current Supply	Rogowski coils / integrator / digital display device
I2 to I5	Test current Outgoing circuits 1 to 4	Current probe

Test and measuring circuits (continued)

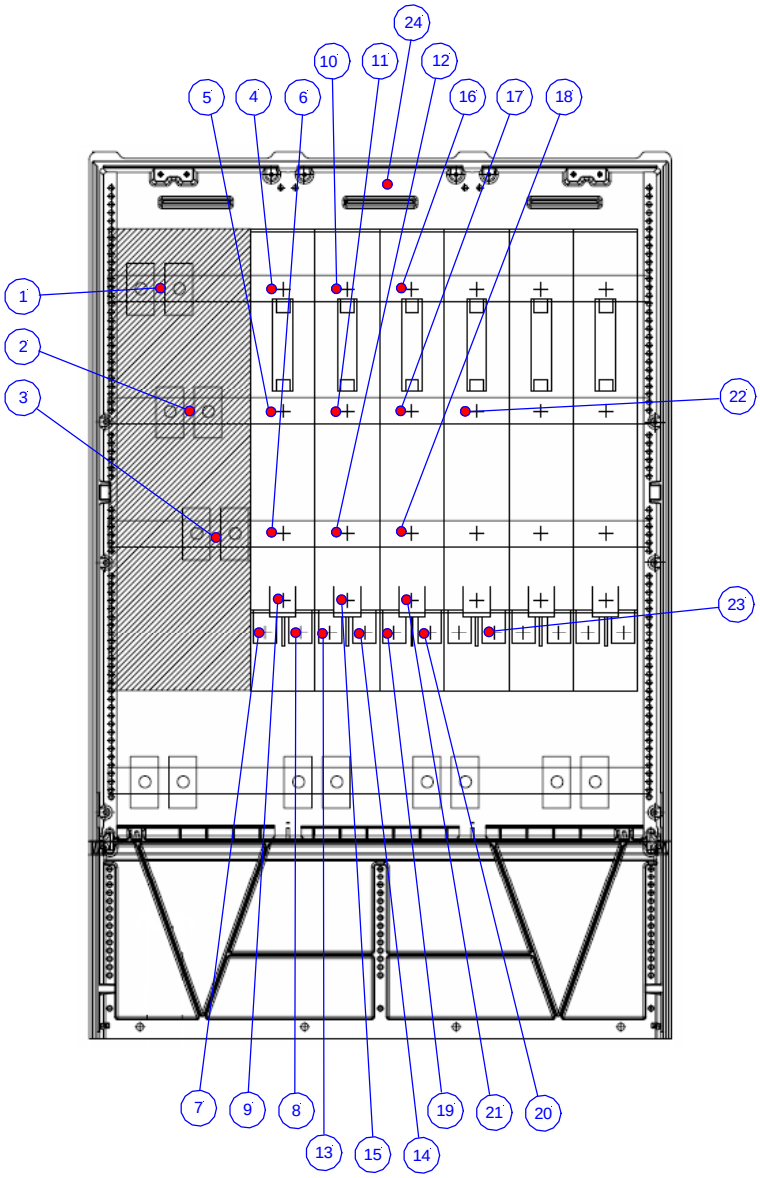


Diagram 2: Arrangement of temperature measuring points

Measuring point	Measured quantity	Measuring sensor/device
1 to 24	Temperature	Cu/Constantan thermocouples (type L) Therm 5500-3
25	Temperature (enclosure)	NiCr/Ni thermal elements (type K) / Almemo 2290-2

3.6 Test results

Date of test: 14 October 2008

Test parameters:

Terminal	Current (Phase L1 / L2 / L3) in A	Frequency in Hz
Supply	627 / 635 / 628	50
Outgoing circuit 1	179 / 175 / 176	
Outgoing circuit 2	175 / 177 / 179	
Outgoing circuit 3	175 / 176 / 175	
Outgoing circuit 4	108 / 105 / 107	

Test results:

Measur. point		Classification Designation	Permitted temperature-rise limit in K	Measured final temperature at ΔT ≤1 K/h in °C	Final temperature rise temperature in K	Temperature reserve in K
1	L1	Supply Cable terminal	70	62.5	41.4	28.6
2	L2			58.1	37.0	33.0
3	L3			59.9	38.8	31.2
4	L1	Outgoing circuit 1 Busbar connection	70 [1)]	65.9	44.8	25.2
5	L2			60.5	39.4	30.6
6	L3			59.7	38.6	31.4
7	L1	Outgoing circuit 1 Cable terminal	70	48.3	27.2	42.8
8	L2			51.0	29.9	40.1
9	L3			54.8	33.7	36.3
10	L1	Outgoing circuit 2 Busbar connection	70 [1)]	66.7	45.6	24.4
11	L2			61.8	40.7	29.3
12	L3			57.0	35.9	34.1
13	L1	Outgoing circuit 2 Cable terminal	70	49.7	28.6	41.4
14	L2			49.4	28.3	41.7
15	L3			54.4	33.3	36.7
16	L1	Outgoing circuit 3 Busbar connection	70 [1)]	64.0	42.9	27.1
17	L2			58.1	37.0	33.0
18	L3			54.6	33.5	36.5
19	L1	Outgoing circuit 3 Cable terminal	70	47.5	26.4	43.6
20	L2			48.7	27.6	42.4
21	L3			52.9	31.8	38.2
22	L2	Outgoing circuit 4 Busbar connection	70 [1)]	55.3	34.2	35.8
23	L2	Outgoing circuit 4 Cable terminal	70	38.9	17.8	52.2
24	-	Indoor air above	-	53.7	-	-
-	-	Average ambient temperature	-	21.1	-	-
25	-	Enclosure [2)]	40	34.8	13.7	26.3
-	-	Door handle	25	25.9	4.8	20.2

Notes:

1) According to IEC 60947-3

2) Average resulting from three measuring points

4. Verification of dielectric properties

4.1 Test laboratory

Low-voltage test laboratory, test room 10

4.2 Normative document

IEC 60439-1: 2004-04, Sub-clause 8.2.2

4.3 Required test parameters

- Test of main circuits:

Power-frequency test voltage	2500	V
Test frequency	50	Hz
Test duration	5	s

- Test of enclosure and operating handles made of insulating material:

Power-frequency test voltage	3750	V
Test frequency	50	Hz
Test duration	5	s

4.4 Test arrangement

During the tests, all secondary circuits were disconnected.

4.5 Test and measuring circuits

The dielectric test was carried out using a mobile AC voltage test unit of HA2000 type with internal measuring device between

- all active parts and the parts of the switchgear assembly (including PEN) that are connected between each other
- all poles and every other pole to be connected to the parts of the switchgear assembly (including PEN)

Technical data of test installations:

AV test device HA2000 E u_{max} = 5 kV, 50 Hz
i_{max} = 200 mA

4.6 Test results

Date of test: 16 October 2008

- Test of main circuits:

Voltage applied to	Earthed	Rated insulation voltage in V	Test voltage in V	Result [1] Disruptive discharges
L1, L2, L3	PEN	690	2500	0
L1	L2, L3, PEN	690	2500	0
L2	L1, L3, PEN	690	2500	0
L3	L1, L2, PEN	690	2500	0

- Test of enclosure and operating handles made of insulating material:

Voltage applied to	Earthed	Rated insulation voltage in V	Test voltage in V	Result [1] Disruptive discharges
L1, L2, L3, PEN [2]	Enclosure	690	3750	0
L1, L2, L3, PEN [2]	Door handle	690	3750	0

Note:

1) IEC 60439-1: 2004 does not permit any disruptive discharge.
2) All earth connections to PEN removed for test.

5. Verification of short-circuit withstand strength

5.1 Test laboratory

Low-voltage test laboratory, test room 1

5.2 Normative document

IEC 60439-1: 2004-04, Sub-clauses 8.2.3 and 8.2.4.2

5.3 Required test parameters

	Main conductor	PEN bar
Test voltage	420 V	243 V
Prospective peak short-circuit current	52.5 kA	30 kA
Prospective sustained symmetrical short-circuit current	25 kA	15 kA
Test duration	1 s	1 s

5.4 Test arrangement

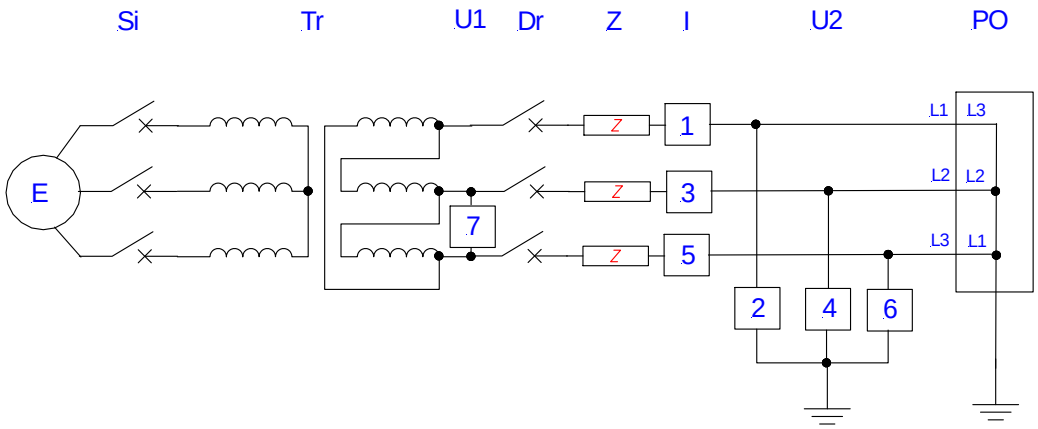
Power was supplied to the main busbar by single-core copper cables of 2 x 185 mm^2.

See Photographs 3 to 6, Sheets 25 to 28.

The feeding to test the PEN bar was done by use of a cable 1 x 185 mm^2 to the connections of the L3 and PEN bar.

See Photograph 7, Sheet 29.

5.5 Test and measuring circuits

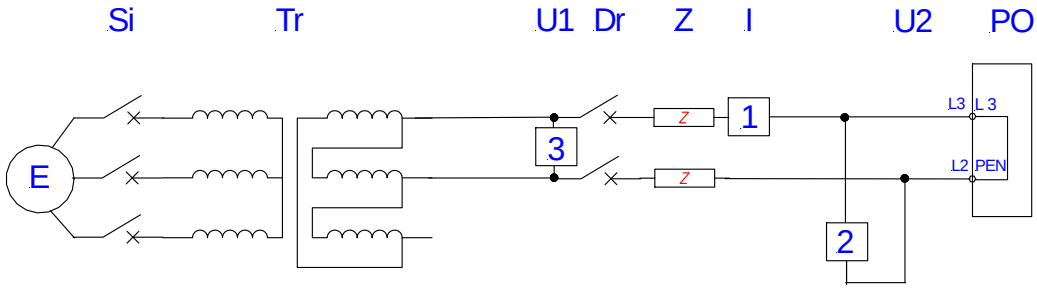


E	Supply	U1	Test voltage measurement
Si	Master breaker	I	Current measurement
Tr	Test transformer	U2	Transient voltage measurement
Dr	Making switch	1 - 7	Measuring points
Z	Test circuit impedance	PO	Test object

Diagram 3: Test and measuring circuits for the three-pole tests

Technical data of measuring circuits

Test No.	Measuring point	Measured quantity	Measuring sensor/device
208 3535	1	Current L1	Shunt
to	2	Voltage L1	Voltage divider
208 3539	3	Current L2	Shunt
	4	Voltage L2	Voltage divider
	5	Current L3	Shunt
	6	Voltage L3	Voltage divider
	7	Test voltage	Voltage transformer / Voltmeter
Recording instruments: Measuring points 1 to 6: BAKKER BE 256 transient recorder			



E	Supply	U1	Test voltage measurement
Si	Master breaker	I	Current measurement
Tr	Test transformer	U2	Transient voltage measurement
Dr	Making switch	1 - 3	Measuring points
Z	Test circuit impedance	PO	Test object

Diagram 4: Test and measuring circuits for the single-pole tests

Technical data of measuring circuits

Test No.	Measuring point	Measured quantity	Measuring sensor/device
208 3540	1	Current	Shunt
and	2	Voltage	Voltage divider
208 3541	3	Test voltage	Voltage transformer / Voltmeter
Recording instruments: Measuring points 1 and 2 BAKKER BE 256 transient recorder			

5.6 Test results

Date of test:	20 October 2008
Condition of test object before test:	Prestressed
Connection of test object:	Main conductor L1/L2/L3
Short-circuit point:	At the end of the main busbar
Ambient temperature:	19 °C

Test parameters:

Test No.			208 3535	208 3536	208 3537
Test voltage	V		450	450	450
Peak short-circuit current	kA	L1	43.7	41.1	40.3
		L2	46.3	45.2	34.1
		L3	55.3	53.1	39.9
Symmetrical short-circuit current	kA	L1	25.8	24.9	24.9
		L2	25.5	24.7	24.5
		L3	25.9	25.0	25.0
	Average		25.7	24.9	24.8
Duration of short-circuit	ms		-	80.3	1075
Joule integral	10^6 A^2s	L1	-	-	666
		L2	-	-	650
		L3	-	-	667
Symmetrical short-circuit current 1 s	kA		-	-	25.7
Notes			1)	2)	3)
Evaluation			-	OK	OK

Notes:
OK The test object is capable of properly carrying its peak current and its short-time current.

1) Setting of the prospective short-circuit current values
2) Peak withstand current test
3) Short-time withstand current test

Date of test:	20 October 2008
Condition of test object before test:	Prestressed
Connection of test object:	Main conductor L1/L2/L3
Short-circuit point:	At the cable connections of the respective main busbar
Fuse applied:	NH2, 500 V, 250 A, gL/gG, manufacturer: Jean Müller
Ambient temperature:	19 °C

Test parameters:

Test No.			208 3538	208 3539
Test voltage	V		450	450
Peak short-circuit current	kA	L1	-	-
		L2	-	-
		L3	55.3	55.3
Symmetrical short-circuit current	kA	L1	25.8	25.8
		L2	25.5	25.5
		L3	25.9	25.9
	Average		25.7	25.7
Power factor cos φ			0.22	0.22
Cut-off current	kA	L1	19.7	19.8
		L2	15.2	15.0
		L3	5.9	4.86
Joule integral	10^6 A^2s	L1	0.465	0.476
		L2	0.318	0.312
		L3	0.058	0.034
Break time	ms		6.8	6.98
Notes			1)	2)
Evaluation			OK	OK

Notes:

OK The test object was able to carry the conditional short-circuit current properly.

1) Test of outgoing circuit 6
2) Test of outgoing circuit 1

Date of test:	20 October 2008
Condition of test object before test:	Prestressed Resistance of the PEN bar before test: 54 μΩ
Connection of test object:	Busbar between L3 and PEN
Short-circuit point:	At the end of the busbars L3 - PEN
Ambient temperature:	19 °C

Test parameters:

Test No.			208 3540	208 3541
Test voltage	V		450	450
Peak short-circuit current	kA	L1	-	-
		L2	-	-
		L3	34.0	23.9
Symmetrical short-circuit current	kA	L1	-	-
		L2	-	-
		L3	16.1	16.1
	Average		-	-
Duration of short-circuit	ms		82	948
Joule integral	10^6 A^2s	L1	-	-
		L2	-	-
		L3	-	246
Symmetrical short-circuit current 1 s	kA		-	15.7
Notes			1)	2)
Evaluation			OK	OK

Notes:

OK The test object is capable of properly carrying its peak current and its short-time current.

1) Peak withstand current test
2) Short-time withstand current test

Resistance of the PEN bar after test: 55 μΩ

6. Verification of clearances and creepage distances

6.1 Test laboratory

Low-voltage test laboratory, test room 10

6.2 Normative document

IEC 60439-1: 2004-04, Sub-clause 8.2.5

6.3 Required test parameters

Minimum clearances and creepage distances (at ≤ 2000 m above SL; degree of pollution 3 and material group III):

Creepage distances ≥ 12.5 mm
Clearance ≥ 5.5 mm

6.4 Test arrangement

The test was performed without incoming and outgoing circuits connected.

6.5 Test and measuring circuits

The measurement was carried out by means of inspection and testing gauges.

6.6 Test results

Date of test: 16 October 2008

All measured values of clearances and creepage distances were above the permissible limit. The smallest clearance measured was 11 mm and the minimum creepage distance measured was 18 mm.

7. Verification of the degree of protection

7.1 Test laboratory

Low-voltage test laboratory, wet test room

7.2 Normative document

IEC 60439-1: 2004-04, Sub-clause 8.2.7

7.3 Required test parameters

Protection against access to hazardous parts and against solid foreign objects

IP 4X

Test probe	Rigid steel rod of 1-mm diameter
Test force	1 N ± 10 %

The rigid steel rod shall not penetrate into the test object's enclosure anywhere.

Test for the protection against ingress of water

IP X4

Test equipment	Spray nozzle
Water flow rate	10 l/min, ± 180° from the vertical
Test duration	1 min/m^2 at least for 5 min
Distance between spray nozzle and test object	300 - 500 mm

7.4 Test arrangement

The test sample was tested free standing in the room as floor-mounted distribution board.

7.5 Test and measuring circuits

Test probe	Rigid steel rod of 1.0-mm diameter DIN EN 60529 (VDE 0470 Teil 1): 2000-09, Table 7 integrated spring-tension meter
Spray nozzle	DIN EN 60529 (VDE 0470 Teil 1): 2000-09, Table 8 built-on flow-rate and pressure measuring instrument

7.6 Test results

Date of test: 27 February 2009

Using the object probe it was tried to penetrate into the enclosure at appropriate points of the exposed sides.

The test probe could not penetrate in the enclosure anywhere.

Afterwards, the test object was exposed to splashing water for 5 minutes. When the door of the switchgear cubicle had been opened, no ingress of water near live parts or insulating parts was found.

8. Verification of resistance of insulating materials to abnormal heat and fire

8.1 Test laboratory

Low-voltage test laboratory, glow-wire test bay

8.2 Normative document

IEC 60439-1: 2004-04, Sub-clause 8.2.9

8.3 Required test parameters

Designation	Test temperature in °C
Enclosure	650

8.4 Test arrangement

A representative test object of 100 mm x 200 mm size was cut from the enclosure door.

8.5 Test and measuring circuits

Glow-wire test apparatus to IEC 60695-2-1

8.6 Test results

Date of test: 17 October 2008

Test temperature: 650 °C, duration of test: 30 s

During the glow-wire test no burning tissue paper or scorching of the pinewood board (see Photograph 10) occured. Within the maximum permissible time of 30 s, no flames developed (see Photograph 11).

9. Photographs

Photograph 1: Arrangement for the temperature-rise test

Photograph 2: Test object during temperature-rise test (front view)

Photograph 3: Arrangement for the short-circuit test of the main busbars (Condition of test object before short-circuit test)

Photograph 4: Arrangement for the short-circuit test of the main busbars
(Condition of test object after short-circuit test)

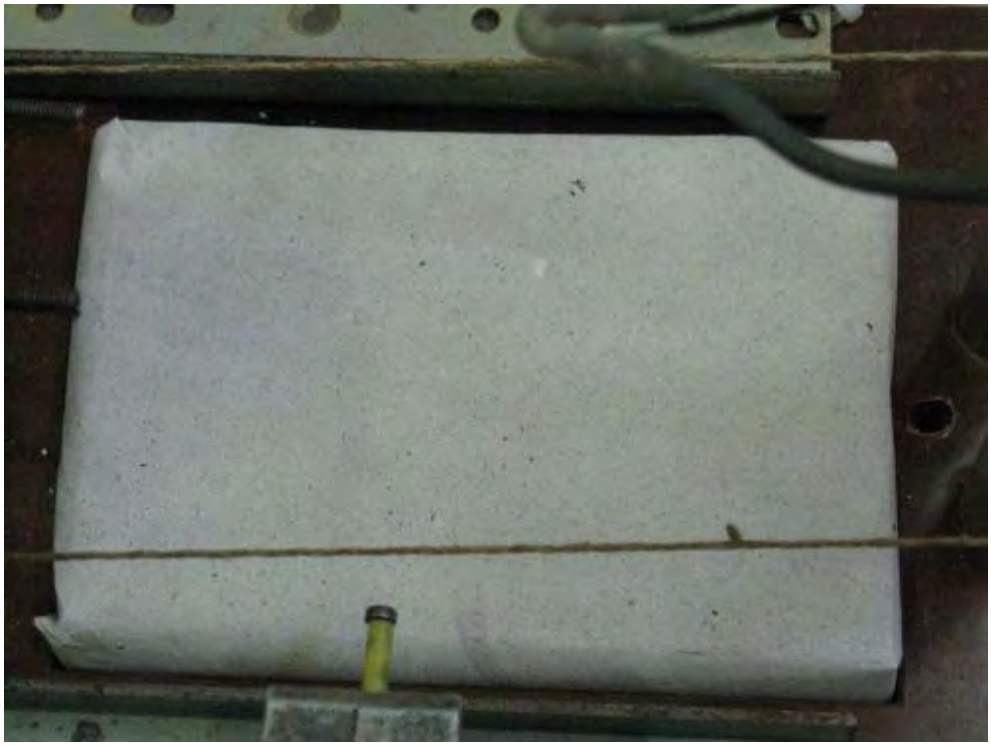
Photograph 5: Arrangement for the short-circuit test of the outgoing circuit no. 6 (Condition of test object after short-circuit test)

Photograph 6: Arrangement for the short-circuit test of the outgoing circuit no. 1
(Condition of test object after short-circuit test)

Photograph 7: Arrangement for the short-circuit test of the PEN bar
(Condition of test object after short-circuit test)

Photograph 8: Arrangement for voltage test

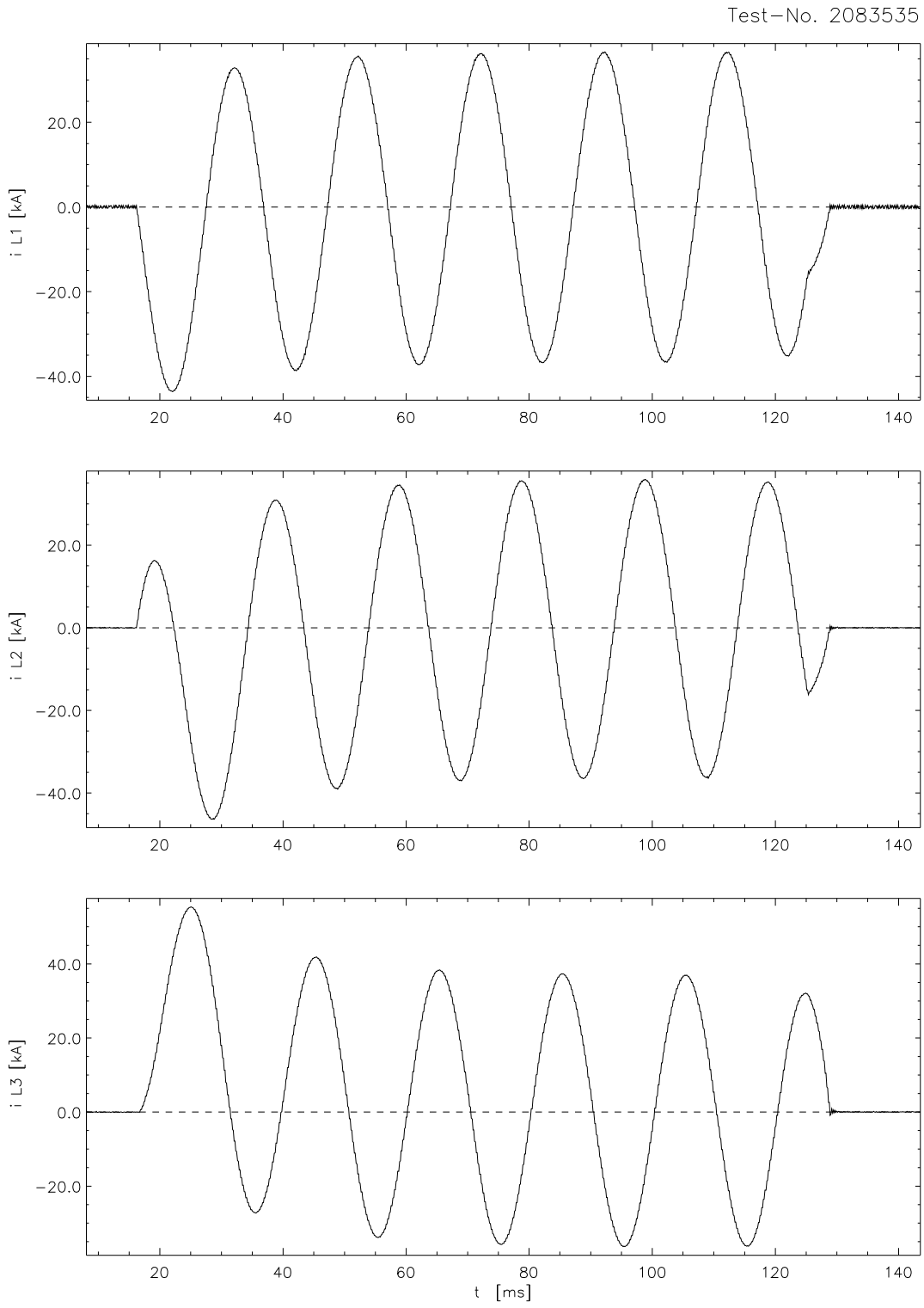
Photograph 9: Arrangement for glow-wire test

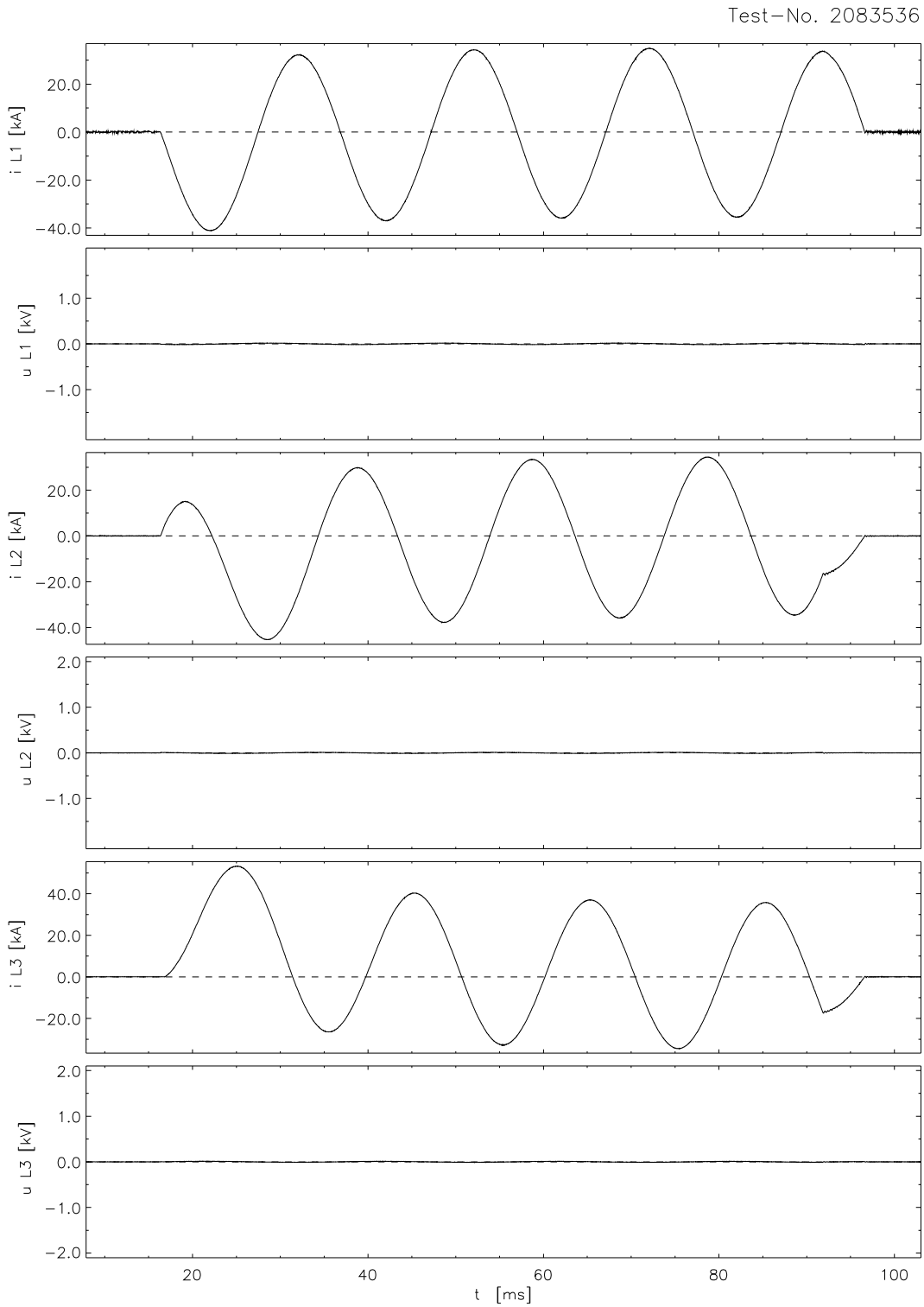


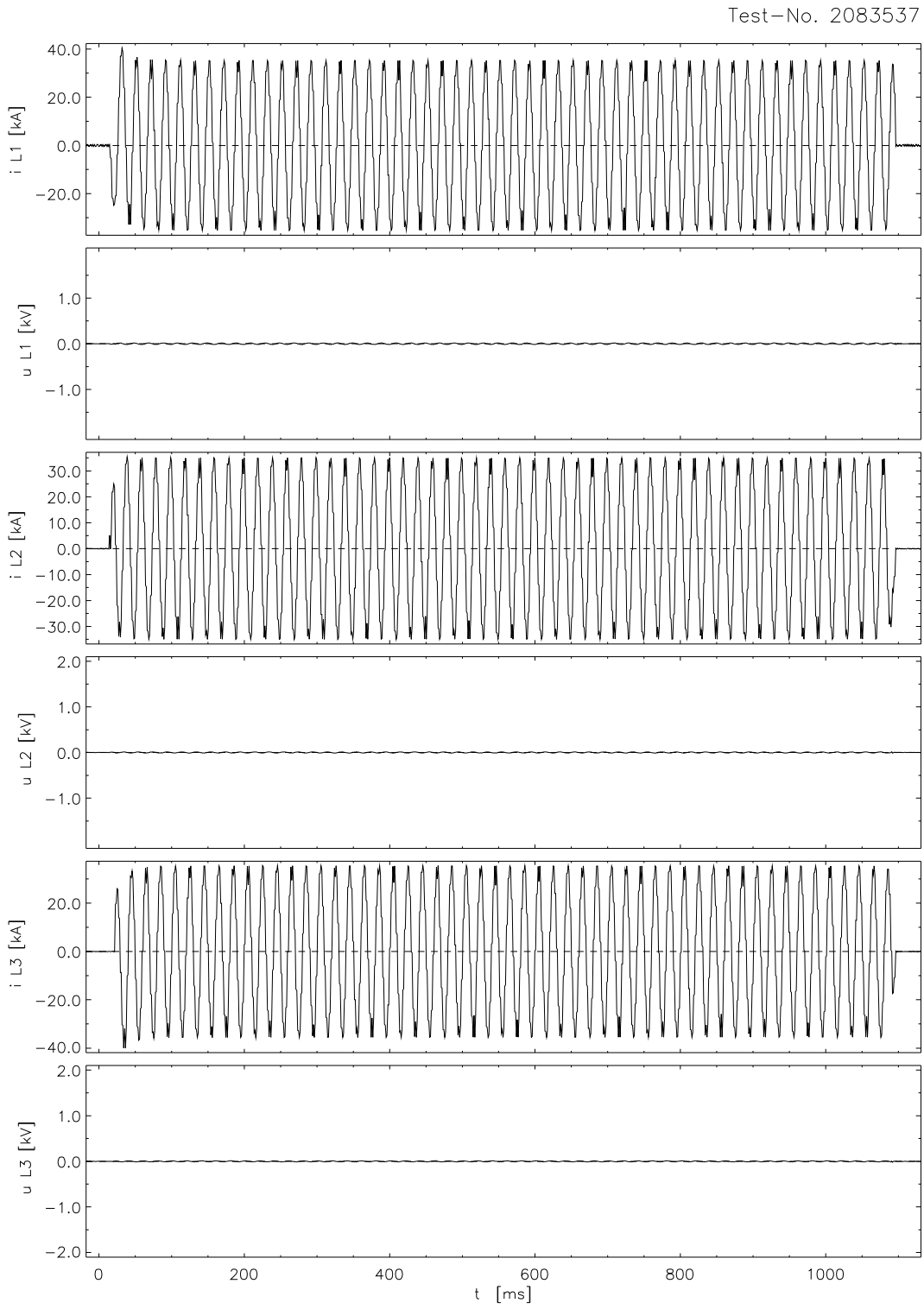
Photograph 10: Condition of the tissue paper after the glow-wire test

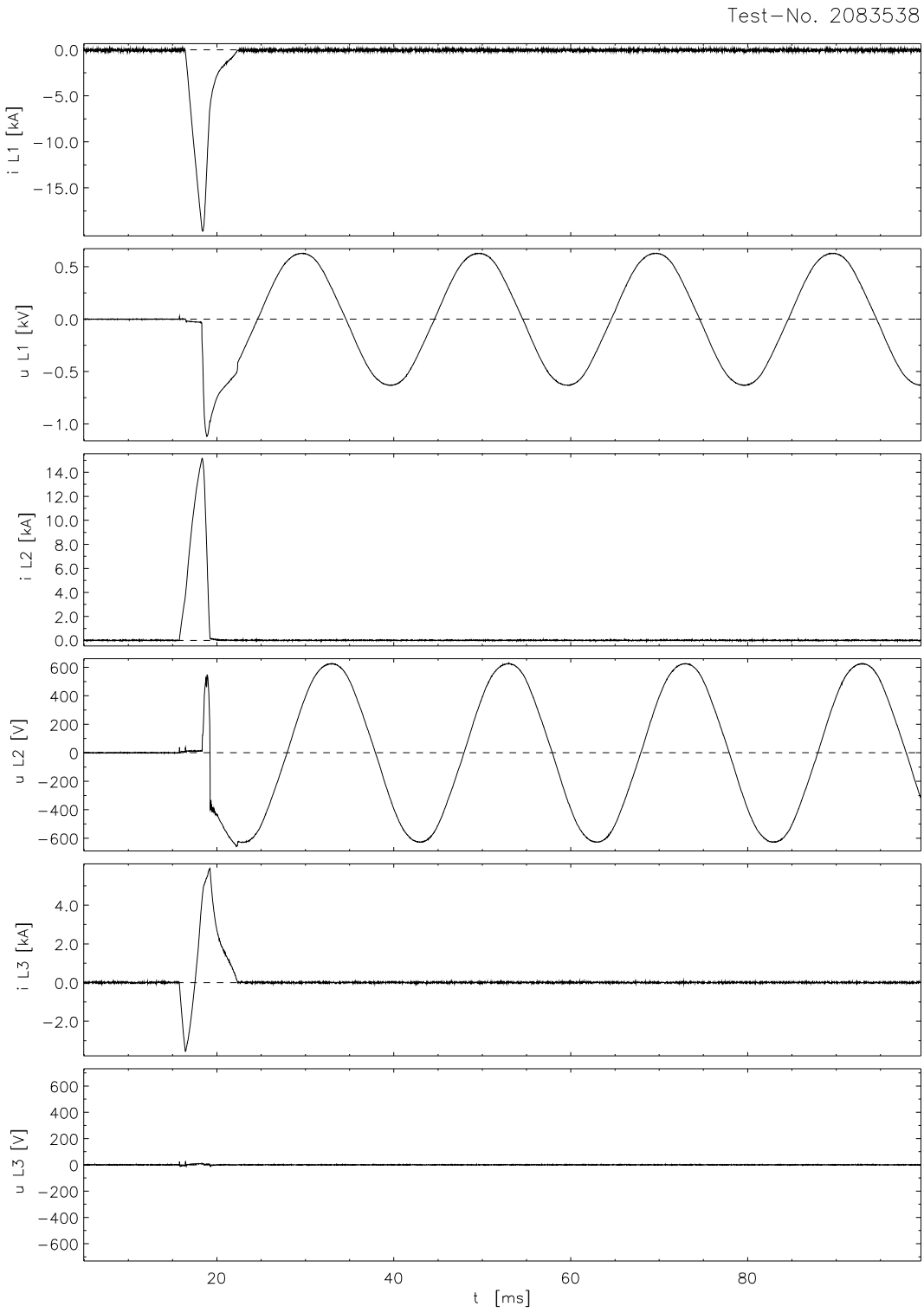
Photograph 11: Condition of test object after test after the glow-wire test

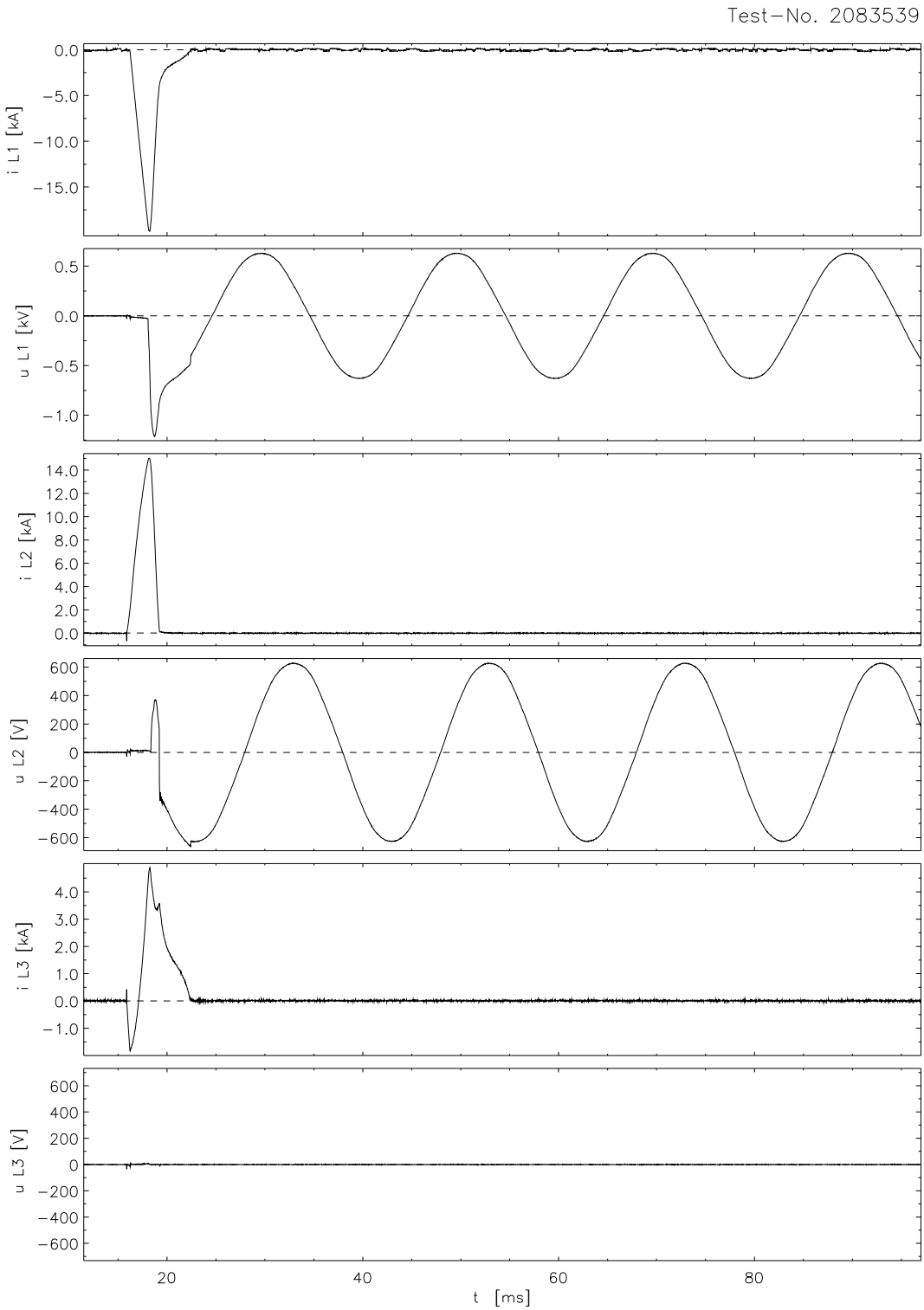
10. Oscillograms

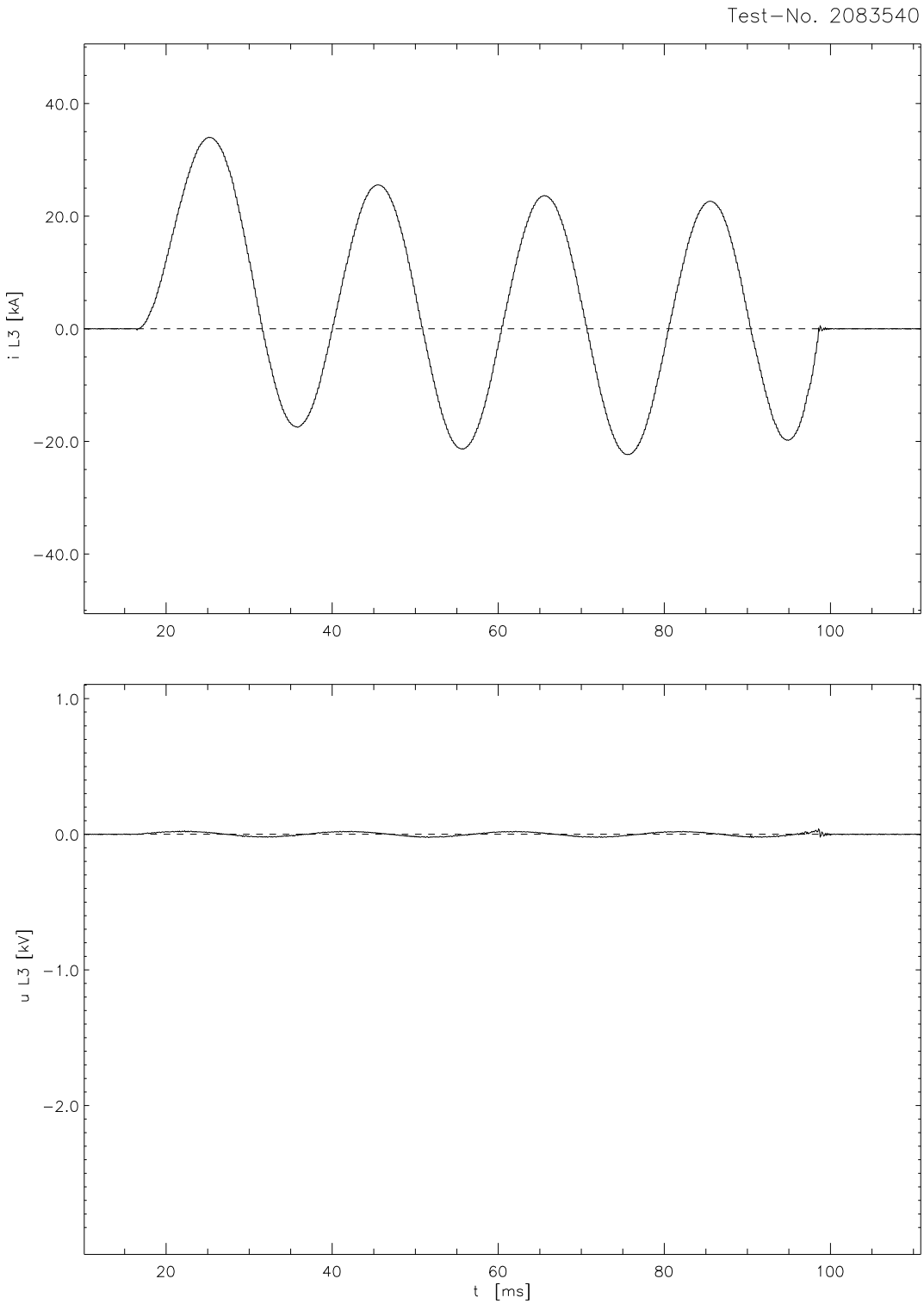


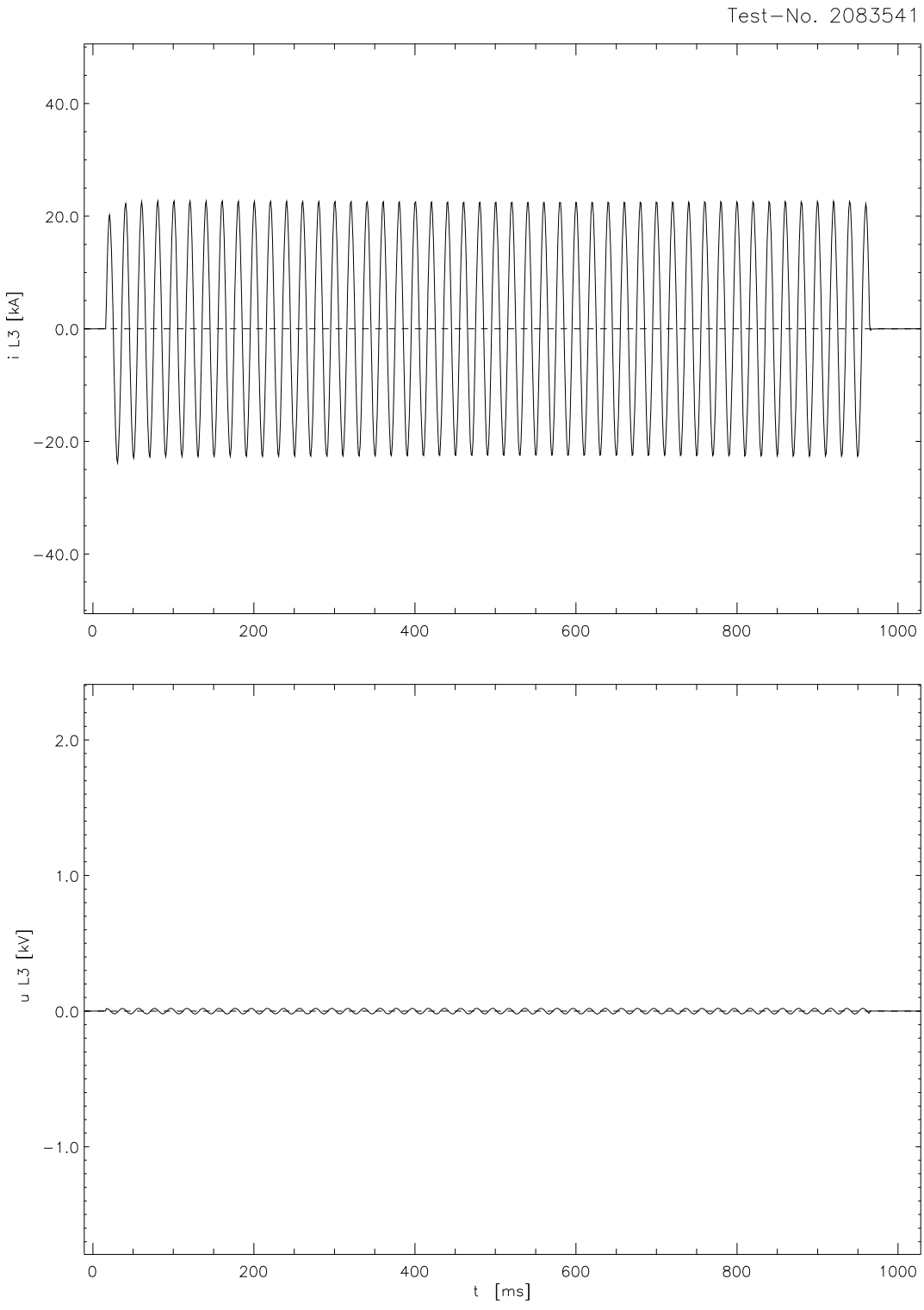

Test-No. 2083536
i L1 [kA]
20.0
0.0
-20.0
-40.0
u L1 [kV]
1.0
0.0
-1.0
i L2 [kA]
20.0
0.0
-20.0
-40.0
u L2 [kV]
2.0
1.0
0.0
-1.0
i L3 [kA]
40.0
20.0
0.0
-20.0
u L3 [kV]
2.0
1.0
0.0
-1.0
-2.0
20
40
60
80
100
t [ms]


Test-No. 2083537
i L1 [kA]
u L1 [kV]
i L2 [kA]
u L2 [kV]
i L3 [kA]
u L3 [kV]
t [ms]

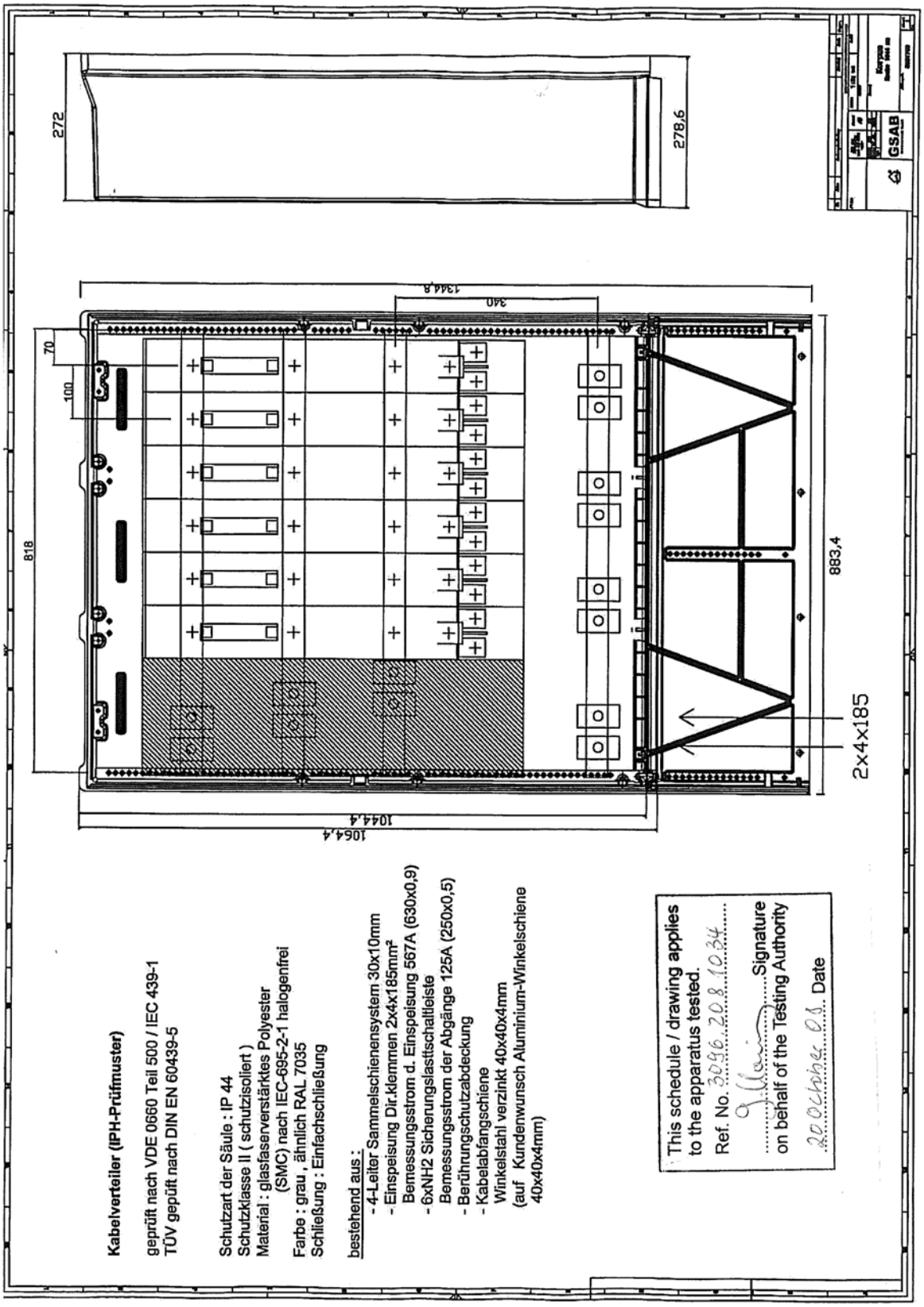

Test-No. 2083538
i L1 [kA]
u L1 [kV]
i L2 [kA]
u L2 [V]
i L3 [kA]
u L3 [V]
t [ms]

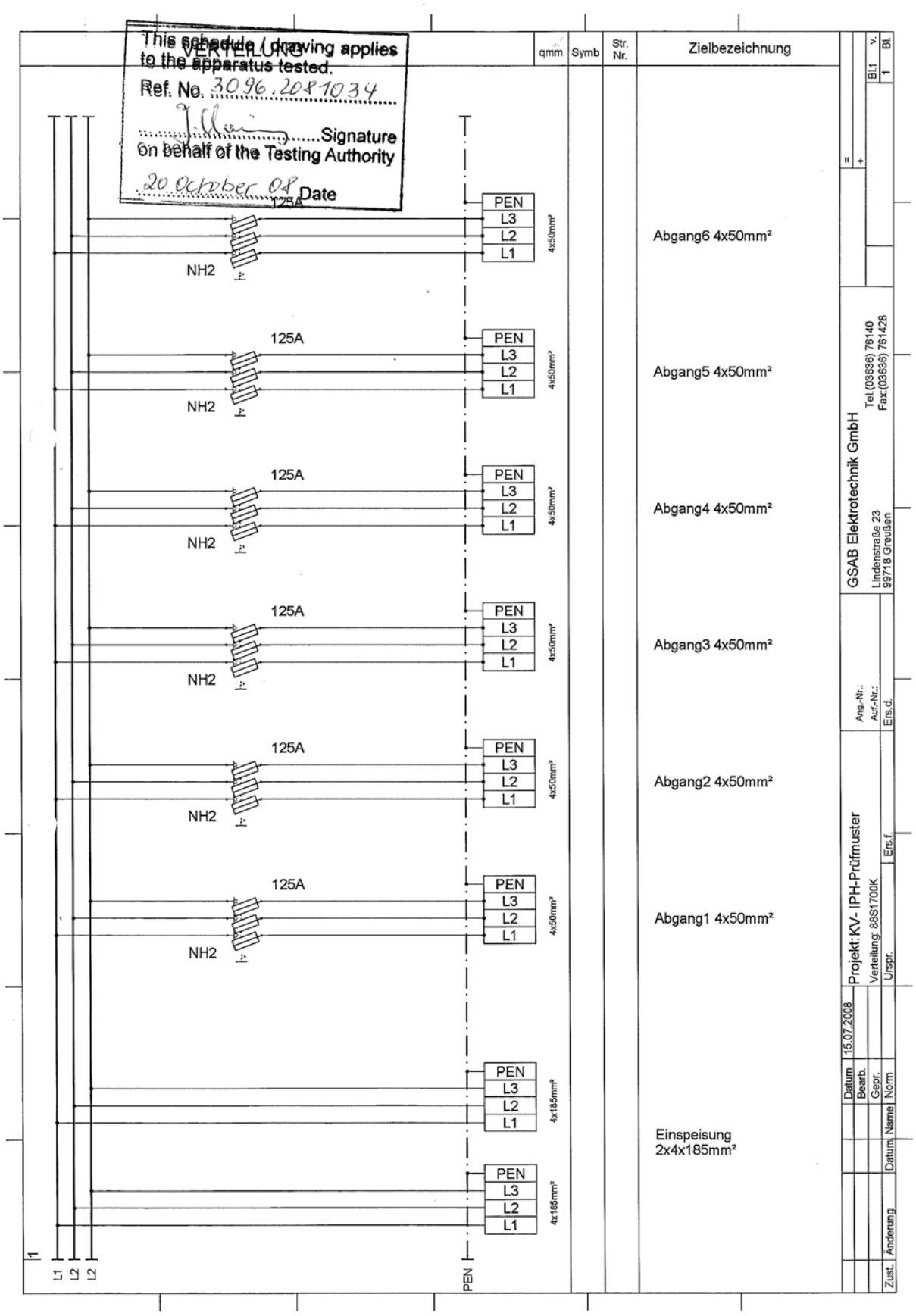

Test-No. 2083539
i L1 [kA]
u L1 [kV]
i L2 [kA]
u L2 [V]
i L3 [kA]
u L3 [V]
t [ms]


Test-No. 2083540
40.0
20.0
0.0
-20.0
-40.0
i L3 [kA]
20
40
60
80
100
1.0
0.0
-1.0
-2.0
u L3 [kV]
t [ms]


Test-No. 2083541
i L3 [kA]
40.0
20.0
0.0
-20.0
-40.0
0
200
400
600
800
1000
u L3 [kV]
2.0
1.0
0.0
-1.0
0
200
400
600
800
1000
t [ms]

11. Drawings


272
278,6
GSAB
1344,8
340
70
100
818
883,4
2x4x185
1044,4
1064,4
Kabelverteiler (IPH-Prüfmuster)
geprüft nach VDE 0660 Teil 500 / IEC 439-1
TÜV gepüft nach DIN EN 60439-5
Schutzart der Säule : IP 44
Schutzklasse II (schutzisoliert)
Material : glasfaserverstärktes Polyester
(SMC) nach IEC-695-2-1 halogenfrei
Farbe : grau , ähnlich RAL 7035
Schließung : Einfachschließung
bestehend aus :
- 4-Leiter Sammelschienensystem 30x10mm
- Einspeisung Dir.klemmen 2x4x185mm²
Bemessungsstrom d. Einspeisung 567A (630x0,9)
- 6xNH2 Sicherungslastschaltleiste
Bemessungsstrom der Abgänge 125A (250x0,5)
- Berührungschutzabdeckung
- Kabelabfangschiene
Winkelstahl verzinkt 40x40x4mm
(auf Kundenwunsch Aluminium-Winkelschiene
40x40x4mm)
This schedule / drawing applies to the apparatus tested.
Ref. No. 3096.208.1034
Signature
on behalf of the Testing Authority
20 October 08 Date



Date(s) of Test: 14 to 20 October 2008 and 27 February 2009

J. Haring
ASTA Observer