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TEST RECORD

NO. 2315.2110393.0245

THS Indústria e Comércio Ltda. Rua Ernesto Biester, 59 CEP 04777-120 - São Paulo BRAZIL		**CLIENT**
THS Indústria e Comércio Ltda.		**MANUFACTURER**
Fuse links		**TEST OBJECT**
Traction fuse 6001000, Traction fuse 7001500, Traction fuse 8001000/3		**TYPE**
Test samples		**SERIAL NO.**
Rated voltage Rated currents	1000 V DC 600 A 700 A 800 A	**RATED CHARACTERISTICS GIVEN BY THE CLIENT**
Following to ESPECIFICAÇÃO TÉCNICA DOS FUSÍVELS DE 600A-1000Vcc EC-9.86.01.41/700-037 Rev. 01: 03.02.10 Sub-clause 5.7		**NORMATIVE DOCUMENT**
Verification of the breaking capacity at 1150 V DC and 100 kA		**TEST PERFORMED**
11 May 2011		**DATE OF TEST**
See Sub-clause 3		**TEST RESULT**
This test document comprises 16 sheets.		

RONALD BORCHERT
Test engineer in charge
Berlin, 13 May 2011

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Independent test laboratory, accredited by Deutsche Akkreditierungsstelle Technik (DATech) e.V. in the fields of h.v. apparatus and switchgear, power cable and power cable accessories, l.v. apparatus and switchgear, installation equipment and switching and control equipment with DAR Record No. DAT-P-019/92.
Institut „Prüffeld für elektrische Hochleistungstechnik" GmbH (IPH Berlin) is a subsidiary of **CESI** S.p.A, Milan.

Deutscher Akkreditierungs Rat
DAR
DAT - P - 019/92

Contents Sheet

1. Participants in the test

Mr. Borchert, Ronald IPH test engineer in charge

2. Test performed

Verification of the breaking capacity at 1150 V DC and 100 kA

3. Test results

Oscillogram No.			208 3812	2112857	2112858	2112859
Type			-	6001000	6001000	6001000
No. of test object:			-	19	7	15
Rated current of fuse-link		A	-	600	600	600
Test voltage		V	1151	1151	1151	1151
Prospective peak current		kA	-	-	-	-
Prospective test current I_p		kA	101	101	101	101
Time constant		ms	17.7	17.7	17.7	17.7
Rate of current rise		kA/ms	5.71	5.71	5.71	5.71
Pre-arcing current i_s		A	-	20.6	21.0	21.1
Cut-off current		A	-	21.4	21.7	21.9
Pre-arcing time		ms	-	4.12	4.22	4.22
Arcing time		ms	-	10.3	9.64	10.2
Break time		ms	-	14.4	13.9	14.4
Pre-arcing integral	10^3	A^2s	-	657	700	705
Arcing integral	10^3	A^2s	-	1012	1066	1072
Breaking integral	10^3	A^2s	-	1661	1757	1769
Arc energy		kVAs	-	101	105	105
Switching voltage		V	-	1748	1698	1716
Recovery voltage		V	-	1154	1154	1156
Resistance after test [1)]		MΩ		0.55	0.55	0.56
Notes			Setting	-	-	-
Evaluation			-	OK	OK	OK

Notes:

1) Resistance was measured 10 minutes after the test.

OK - The test object was able to break properly.

Test results (continued)

Oscillogram No.			211 2860	211 2861
Type			7001500	8001000/3
No. of test object:			-	-
Rated current of fuse-link		A	-	-
Test voltage		V	1151	1151
Prospective peak current		kA	-	-
Prospective test current I_p		kA	101	101
Time constant		ms	17.7	17.7
Rate of current rise		kA/ms	5.71	5.71
Pre-arcing current i_s		A	30.7	28.2
Cut-off current		A	31.4	29.0
Melting time		ms	6.42	5.82
Arcing time		ms	8.80	9.92
Break time		ms	15.2	15.7
Pre-arcing integral	10^3	A^2s	2183	1674
Arcing integral	10^3	A^2s	2205	2116
Breaking integral	10^3	A^2s	4369	3774
Arc energy		kVAs	164	161
Switching voltage		V	1853	1701
Recovery voltage		V	1155	1155
Resistance after test [1)]		MΩ	0.64	0.61
Notes			-	-
Evaluation			OK	OK

Notes:

1) Resistance was measured 10 minutes after the test.

OK - The test object was able to break properly.

4. Photographs

Photo 1: Test object 6001000, No. 19 after the test

Photo 2: Test object 6001000, No. 19 after the test

Photo 3: Test object 6001000, No. 7 after the test

Photo 4: Test object 6001000, No. 7 after the test

Photo 5: Test object 6001000, No. 15 after the test

Photo 6: Test object 6001000, No. 15 after the test

Photo 7: Test object 7001500 after the test

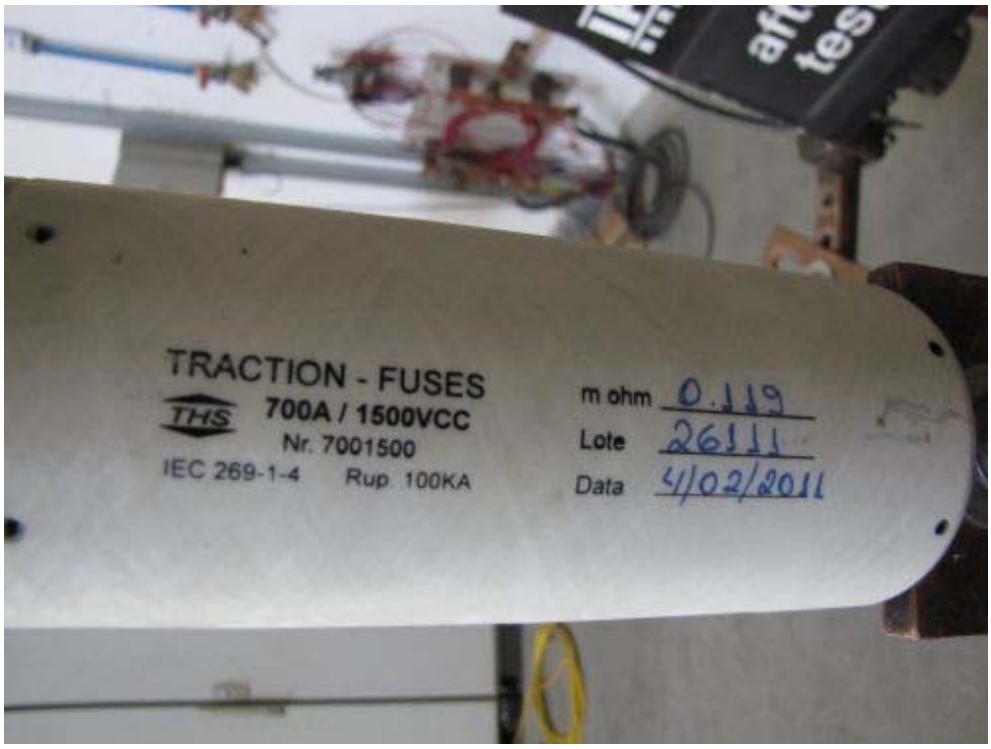


Photo 8: Test object 7001500 after the test

Photo 9: Test object 8001000/3 after the test

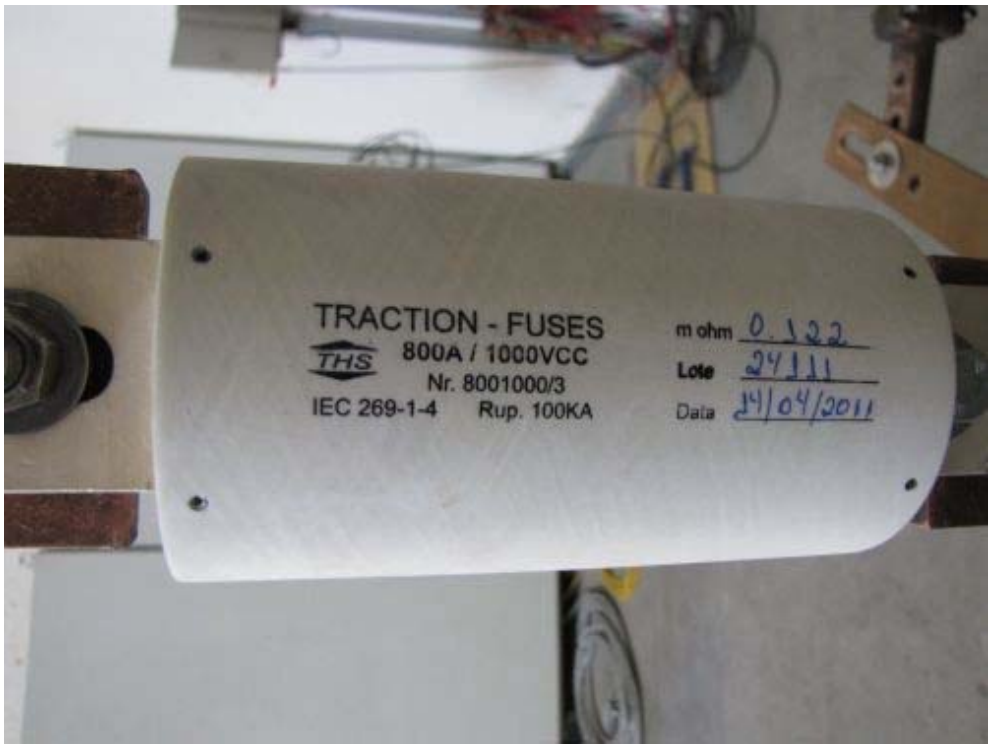
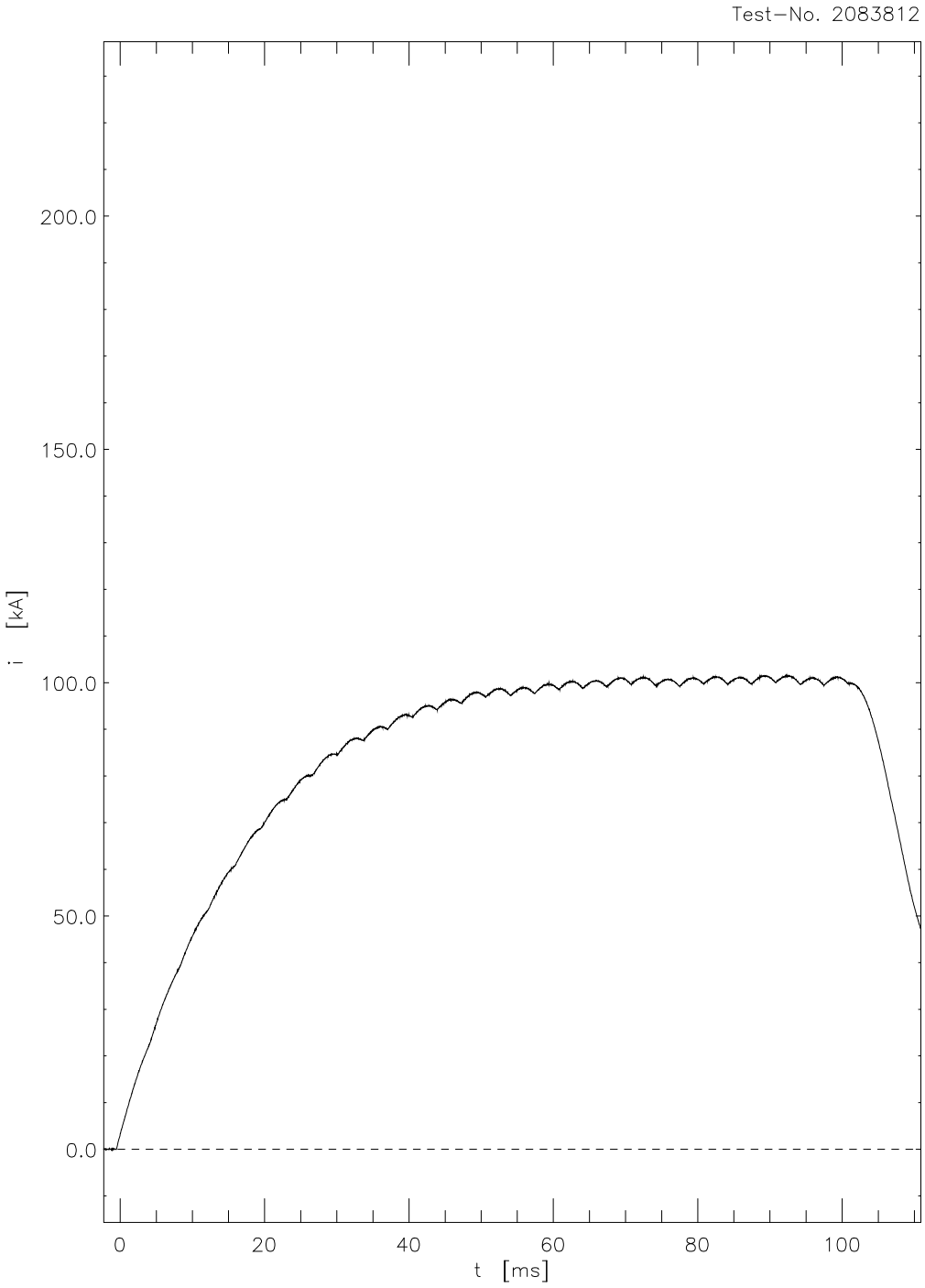
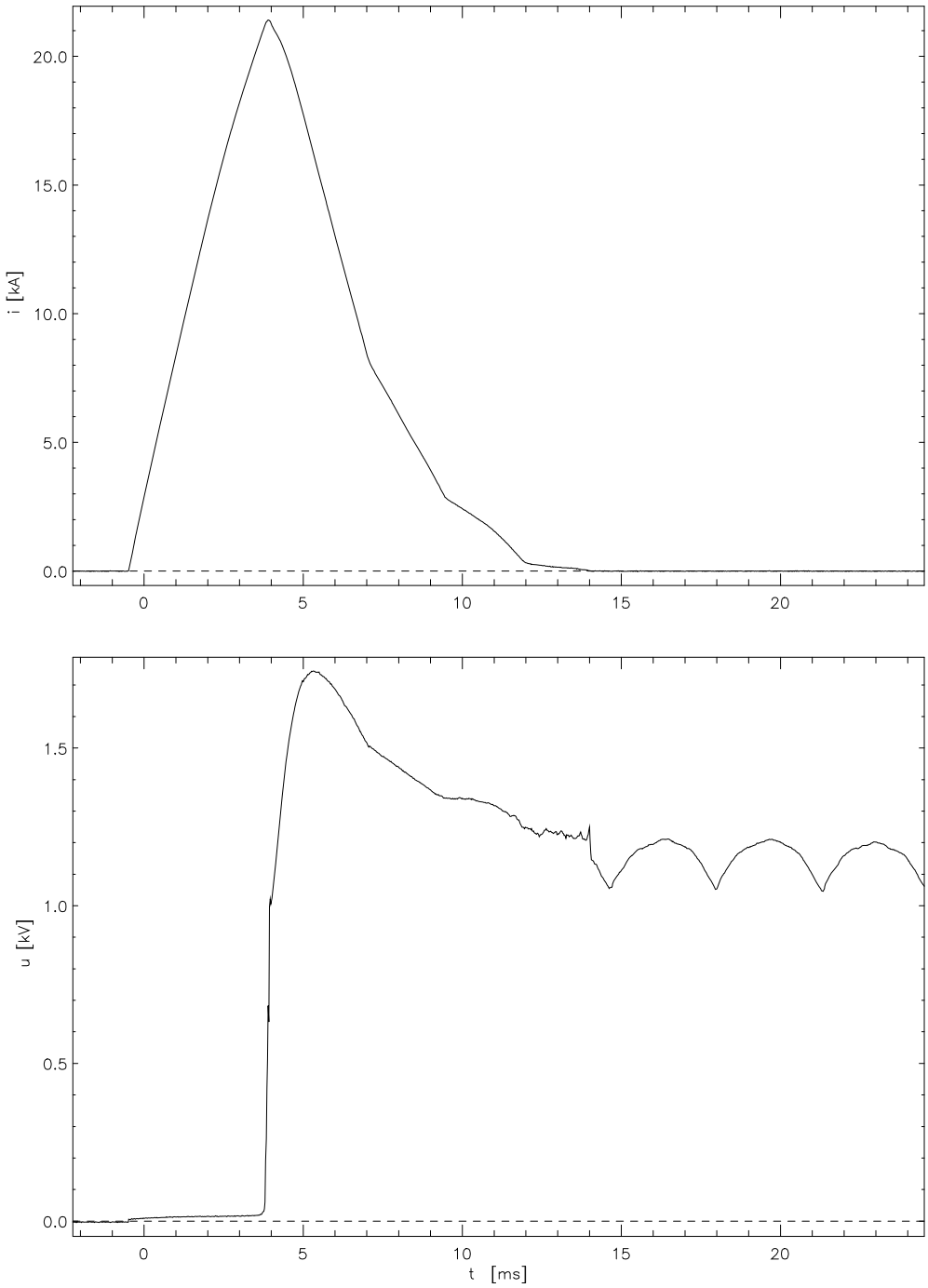


Photo 10: Test object 8001000/3 after the test

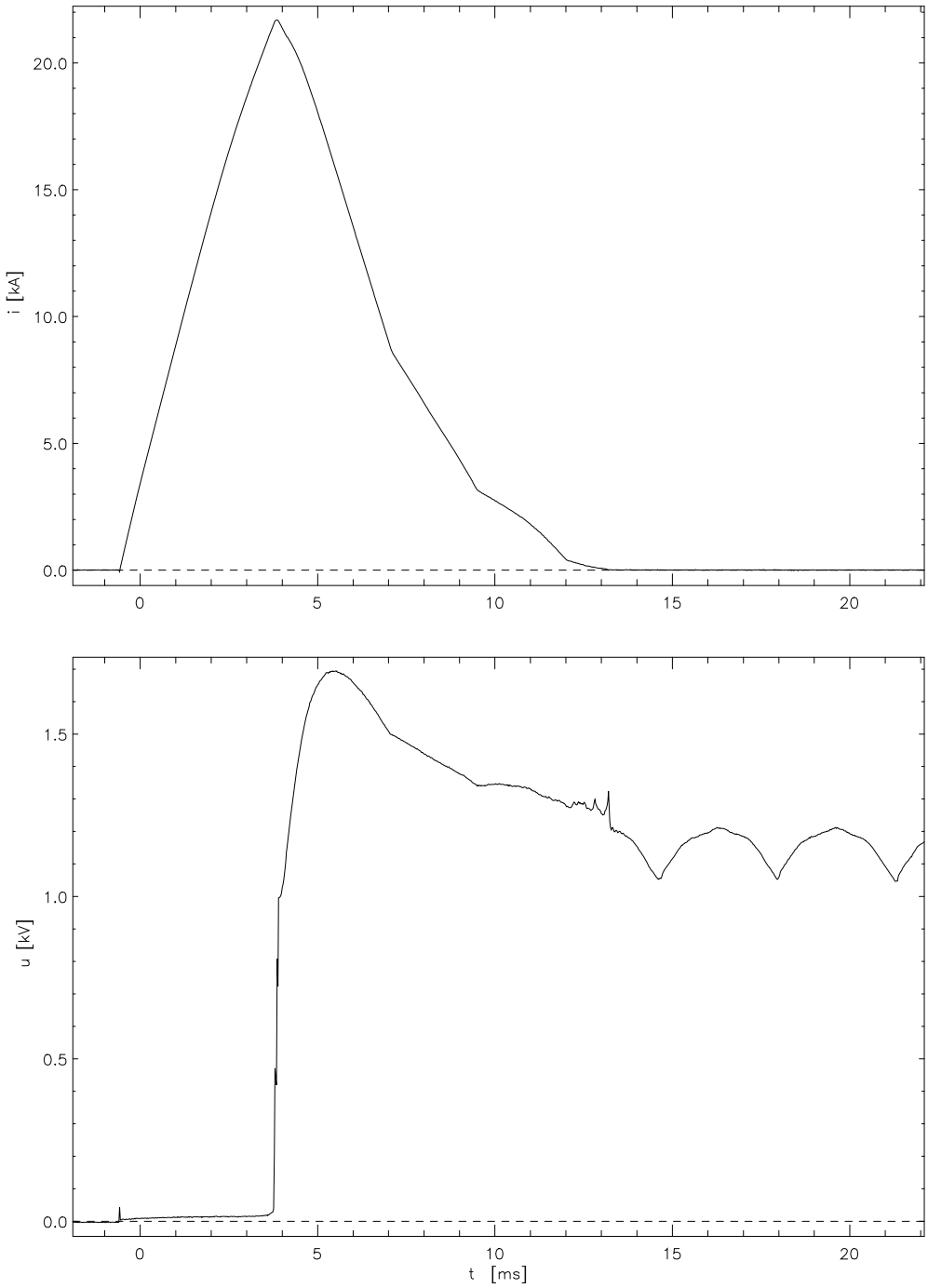
5. Oscillograms

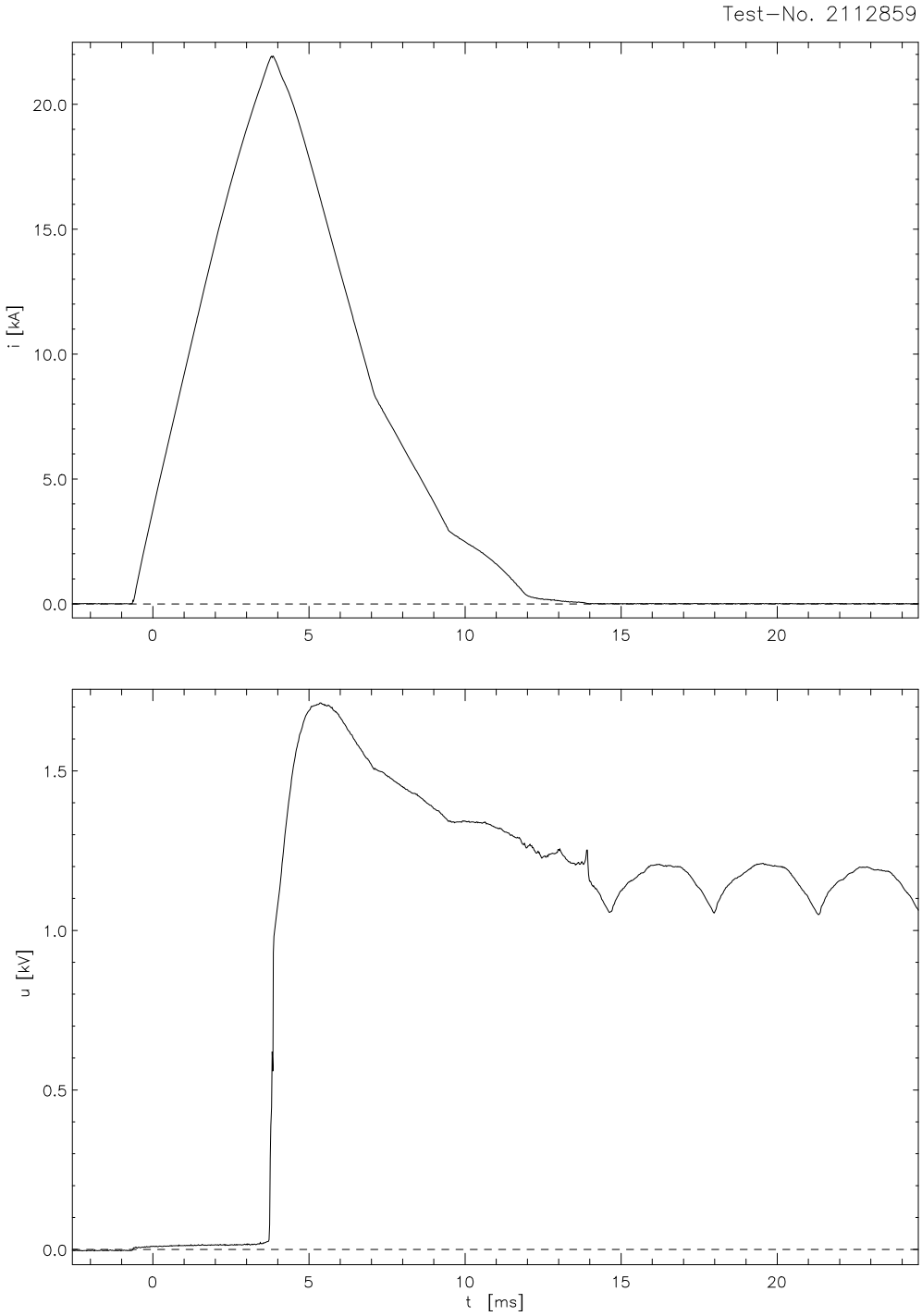


Test-No. 2112857

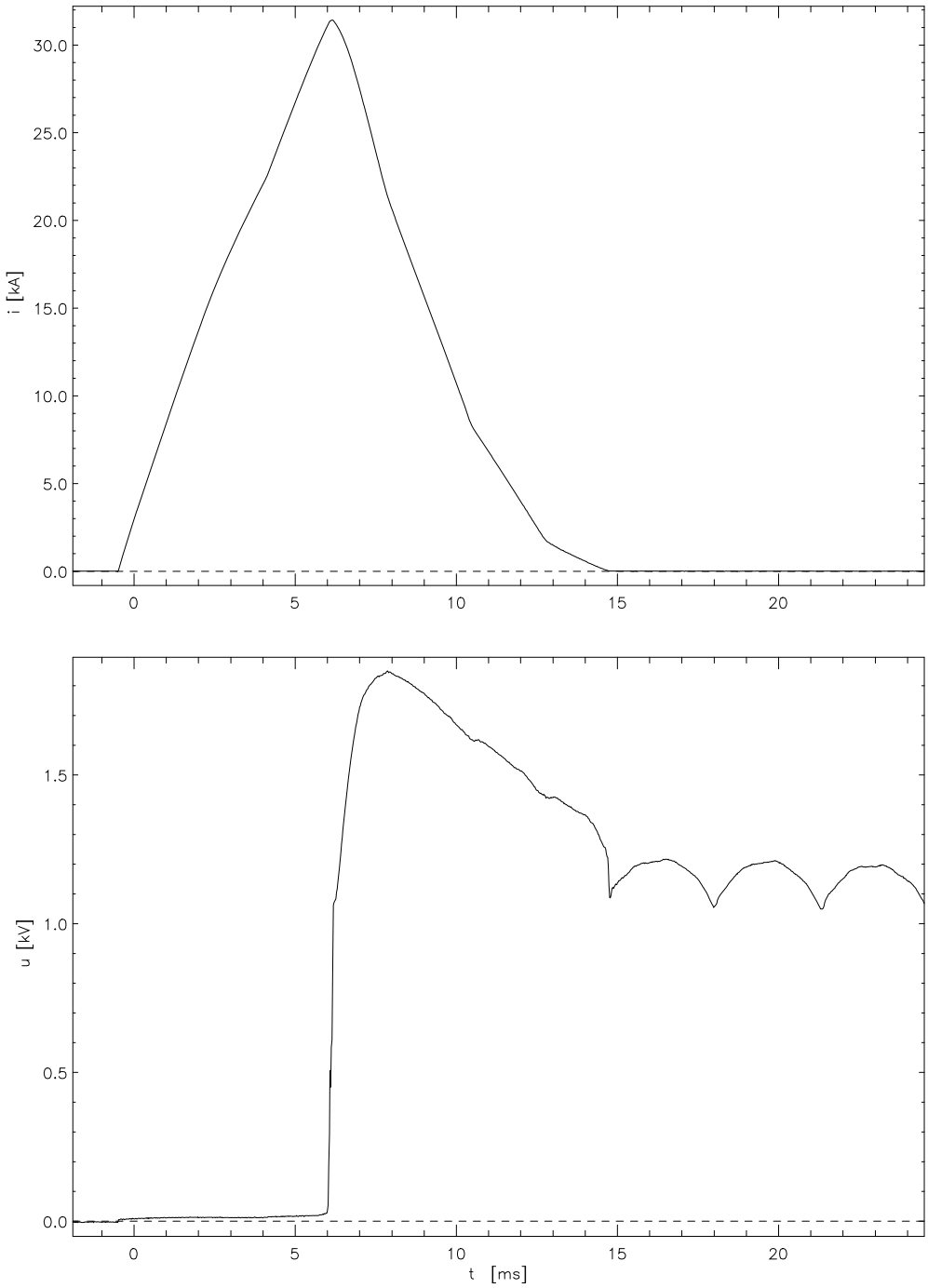


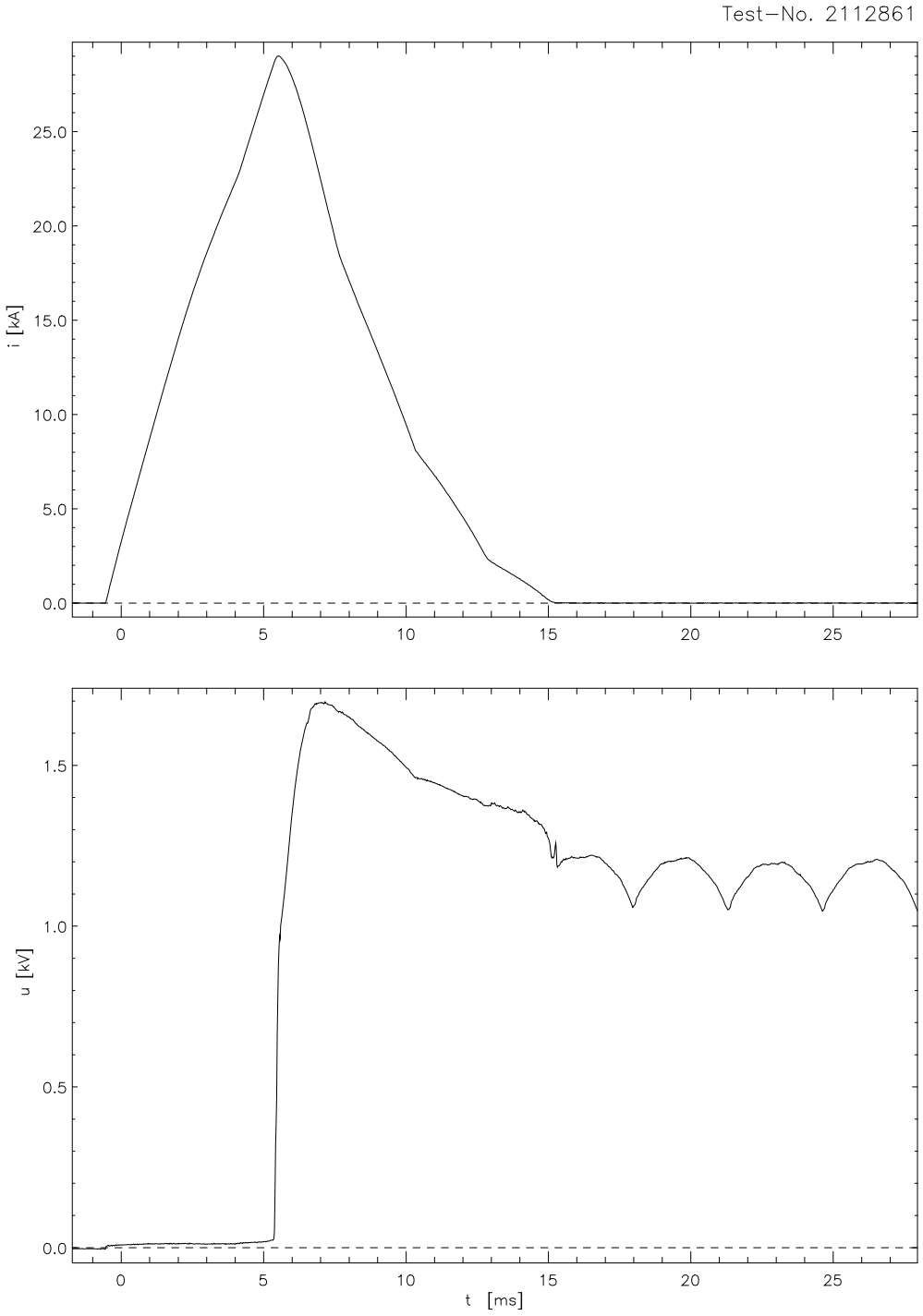
Test-No. 2112858




Test-No. 2112859
i [kA]
20.0
15.0
10.0
5.0
0.0
0
5
10
15
20
u [kV]
1.5
1.0
0.5
0.0
t [ms]

Test-No. 2112860




Test-No. 2112861
i [kA]
25.0
20.0
15.0
10.0
5.0
0.0
0
5
10
15
20
25
u [kV]
1.5
1.0
0.5
0.0
t [ms]