RESEARCH-DEVELOPMENT AND TESTING NATIONAL
INSTITUTE FOR ELECTRICAL ENGINEERING

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TEST REPORT
No. 9348 / February 18, 2005

SR EN ISO / CEI 17025 : 2001
CERTIFICAT DE ACREDITARE
Nr. 004 - L

Tested product:	2000 kVA / 0.4 kV Elektrik Panel
Test:	Verification of short-circuit withstand strength Verification of the effectiveness of the protective circuit
Test method:	According to IEC 60439-1/1999, subclause 8.2.3 and 8.2.4
Test purpose:	Quality certification
Test date:	February 18, 2005
Test result:	Passed the test successfully

Head of LMP:
Dr. Eng. George Curcanu

LABORATORUL DE MARE PUTERE "OVIDIU RARINCA" CRAIOVA

Responsible for quality assurance:
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ICMET CRAIOVA AC LMP

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Test witness: Mr. Yusuf ARPACIOGLU from IMI Consultancy A.S. - Turkey

Report has 16 pages and it is edited in 4 copies from which 3 copies for customer.

LMP ICMET

Note:
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2. Results refer to test product only.
3. Accreditation of the laboratory or any of its Test Reports issued under accreditation regime do not constitute or do not imply themselves an approval of the product by RENAR which gave the accreditation or any other body.

CUSTOMER: **IMI CONSULTANCY A.S.**
206 Sok. No. 1 K:1 D:1 A - Blok Bornova IZMIR - Turkey

MANUFACTURER: **TEKPAN TEKNIK ELEKTRIK KUMANDA, PANO SAN. VE. TIC. LTD. STI.**
Kemalpasa Mah. 405/1 Sokak No: 4 Pinarbasi IZMIR - Turkey

IDENTIFICATION OF APPARATUS

	Electric panel	Circuit breaker
Type	DHL	VL 250 and VL160X
Serial number/year	0151 / 2005	Manufactured by Siemens
Technical documentation/Drawing	- / See page 8	
Order no.:	Contract No. 3107 / 14.01.2005	
Product receiving's date:	18.01.2005	
Product condition at receiving:	New	

PERFORMANCES ESTABLISHED BY PRODUCER

Rated operational voltage	0.4	kV
Rated power	2000	kVA
Rated frequency	50	Hz
Rated short-time current		
- peak value (Ipk)	105	kA
- r.m.s. value (Icw)	50	kA
Rated duration of short-circuit (t)	1	s
Rated conditional short-circuit current (Icc)	40	kA

TEST PROGRAM

Verification of the short-circuit withstand strength was performed on the following circuits :

1. **Main bus bars** (three-phase test) at parameters: Ipk = 105 kA, Icw = 50 kA, t = 1 s. Supply was made with 2x240 mm^2 flexible cables of 2 meters on the input terminals and the short-circuit was made with 80x10 mm^2 copper bar on the output terminals of the busbar (see page 9).
2. **250 A outgoing circuit** (three-phase test) at parameters: Ipk = 84 kA, Icc = 40 kA, t = 0.2 s.
3. **63 A outgoing circuit** (three-phase test) at parameters: Ipk = 84 kA, Icc = 40 kA, t = 0.2 s.

Supply was made with 2x240 mm^2 flexible cables of 2 meters on the busbars input terminals and the short-circuit was made with 180 mm^2 flexible cables of 2 meters on the output terminals of the circuit breaker.

Previously for both outgoing circuits was made:

- current calibration test at parameters: Ipk = 84 kA, Icc = 40 kA, t = 0.2 s;
- voltage calibration test at U = 400 V, t = 0.2 s.

Test circuit is presented in page 3.

4. **Neutral circuit** (single-phase test) at parameters: Ipk = 63 kA, Icw = 30 kA, t = 1 s.
5. **Protective circuit** (single-phase test) at parameters: Ipk = 105 kA, Icw = 50 kA, t = 1 s. For both single-phase tests supply was made with 2x240 mm^2 flexible cables of 2 meters between the input terminal of the phase T and output terminal of the protective circuit. General busbar of phase T was connected serial with the input terminal of the protective circuit with 2x240 mm^2 flexible cables of 2 meters.

Test circuit is presented in page 4.

TEST REPORT DOCUMENTATION: Oscillograms 7 ; Tables 5 ;
Photos 1 ; Drawings 4 ;