S: TW

KEMA

TIC 2132-11

TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

APPARATUS A three-phase dry-type power transformer

DESIGNATION Cast Resin dry type transformer **SERIAL No.** 10020011

Rated power	**3200 kVA**
Rated voltage	**20 kV - 4 x 2,5% / 0,400 kV**
Connection symbol	**Dyn11**
Rated frequency	**50 Hz**

MANUFACTURER Unelectra International Corp.,
Taoyuan, Taiwan

TESTED FOR Unelectra International Corp.,
Taoyuan, Taiwan

TESTED BY KEMA HIGH-POWER LABORATORY and HIGH-VOLTAGE LABORATORY
Utrechtseweg 310 - 6812 AR Arnhem - The Netherlands

DATE(S) OF TESTS 19, 28 and 29 September, 3 and 20 October 2011

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 the complete type test requirements of

IEC 60076 - 11 (2004)

This Type Test Certificate has been issued by KEMA following exclusively the STL Guides.

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 and to justify the ratings assigned by the manufacturer as listed on page 4 and the dynamic ability to withstand short-circuits.

This Certificate 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 consists of 53 sheets in total.

This Certificate falls under the scope of the accreditation certificates L 020 and L 218 of the Dutch Council for Accreditation. See information sheet (page 2).

KEMA Nederland B.V.

S.A.M. Verhoeven
Director Testing, Inspections &
Certification The Netherlands

Arnhem, 5 January 2012

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Version: 1

1 Certificate

A Certificate contains a record of a series of type tests carried out strictly in accordance with a recognized standard. The equipment tested has fulfilled the requirements of this standard and the relevant ratings assigned by the manufacturer are endorsed by KEMA. The Certificate is applicable only to the equipment tested. KEMA is responsible for the validity and the contents of the Certificate.
The responsibility for conformity of any apparatus having the same designation as the one tested rests with the manufacturer. The Certificate contains the essential drawings and a description of the equipment tested.
Detailed rules are given in KEMA's Certification procedure.

2 Report of Performance

A Report of Performance contains a record of one or more tests which have been carried out according to the client's instructions. These tests are not necessarily in accordance with a recognized standard. The test results do not verify ratings of the test object.

KEMA issues three types of Reports of Performance:

2.1 *The tests have been carried out strictly in accordance with …. The apparatus has complied with the relevant requirements.*

This sentence will appear on the front page of a Report of Performance if the tests have been performed in accordance with a recognized standard, but the series of tests does not completely fulfil the requirements for a Certificate of Compliance (for example, if the number of test duties is not a complete series of type tests). The Report contains verified drawings and a description of the equipment tested. Detailed rules are given in KEMA's Certification procedure. The condition of the test object after the tests is assessed and recorded in the Report.

2.2 *The tests have been carried out in accordance with the client's instructions. Test procedure and test parameters were based on ....*

This sentence will appear on the front page of a Report of Performance if the number of tests, the test procedure and the test parameters are based on a recognized standard and related to the ratings assigned by the manufacturer. If the apparatus does not pass the tests such behaviour will be mentioned on the front sheet. Verification of the drawings (if submitted) and assessment of the condition after the tests is only done on the client's request.

2.3 *The tests have been carried out according to the client's instructions.*

This sentence will appear on the front page of a Report of Performance if the tests, test procedure and/or test parameters are not in accordance with a recognized standard.

3 Standards

When reference is made to a standard, and the date of issue is not stated, this applies to the latest issue, including amendments which have been officially published prior to the date of the tests.

4 Official and uncontrolled test documents

The official test documents of KEMA High-Power Laboratory are issued in bound form. Uncontrolled copies may be provided as loose sheets or as a digital file for convenience of reproduction by the client. The copyright has to be respected at all times.

5 Accuracy of measurement

In the table of test results the measured quantities are given in three digits. This method of presentation does not indicate an accuracy. The guaranteed uncertainty in the figures mentioned, taking into account the total measuring system, is less than 5%, unless mentioned otherwise.

6 Qualified by RvA (Dutch Council for Accreditation)

KEMA High-Power Laboratory and High-Voltage Laboratory have been entered in the RvA-register for laboratories under resp. Nrs. L 020 and L 218 for the testing services as defined in the Field of Accreditation.
The accreditation is carried out in accordance with ISO/IEC 17025.

TABLE OF CONTENTS:

RATINGS/CHARACTERISTICS ASSIGNED BY THE MANUFACTURER AND PROVED BY TESTS

Insulation level LI	125	kV
Voltage	20 kV - 4 x 2,5% / 0,400	kV
Power	3200	kVA
Current	92,4 / 4619	A
Short-circuit impedance	7,5	%
Connection symbol	Dyn11	
Cooling method	AN	
Frequency	50	Hz
Category	II	
Apparent system power	500	MVA

DESCRIPTION OF APPARATUS TESTED

A three-phase dry-type power transformer

LIST OF DRAWINGS

The manufacturer has guaranteed that the equipment submitted for tests has been manufactured in accordance with the drawings mentioned below.
KEMA has verified that these drawings adequately represent the equipment tested.

The following drawings have been included in this Certificate:

Drawing No.	Rev. No.
BO-005535	0
B454-1052	0
B454-1053	0

The following drawings are only listed for reference and are kept in KEMA's files:

Drawing No.	Rev. No.
BO-005536	0
B430-0096	0
B430-0097	0
B451-5891	0
B451-5892	0

THE TESTS WERE WITNESSED BY

Name	Company
Chen, A. Chou, A.	Unelectra International Corp., Taipei, Taiwan

THE TESTS WERE OBSERVED BY

Name	Company
Ebbers, L.F.H. Wiggers, R.	KEMA High-Power Laboratory, Arnhem, The Netherlands
Smeenk, S.	KEMA High-Voltage Laboratory, Arnhem, The Netherlands

THE TRANSFORMER WAS INSPECTED BY

Name	Company
Wiggers, R.	KEMA, Arnhem, The Netherlands