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# Type Test Certificate

## B4014696

### Manufacturer

El Sewedy Transformers  
10th Ramadan City, 3rd Industrial Zone 3, Square A4  
Cairo (Egypt)

### Apparatus Designation

Oil-immersed power transformer  
Iraq



Type Test Certificate of Short-circuit performance

Apparatus Oil-immersed power transformer

Designation Iraq

Rated power 400 kVA ; Rated voltages 11/0,416 kV ; Rated frequency 50 Hz

Manufacturer El Sewedy Transformers  
10<sup>th</sup> Ramadan City, 3<sup>rd</sup> Industrial Zone 3, Square A4, Cairo (Egypt)

Client El Sewedy Transformers  
10<sup>th</sup> Ramadan City, 3<sup>rd</sup> Industrial Zone 3, Square A4, Cairo (Egypt)

Tested by CESI S.p.A. Milan, Italy

Tests date from May 23, 2014 to May 26, 2014

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in the reference documents identified in this Certificate, has been subjected to the series of proving tests in accordance with

IEC 60076-5 (2006)  
Clause 4.2

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

The results are shown in the record of Proving Tests and the oscillograms attached in the Test Reports. 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 listed on page No. 3.

The 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.

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No. of pages 4 No. of pages annexed -

Issue date June 16, 2014

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**CESI** S.p.A.  
Testing & Certification Division  
Testing Operations Area  
"Milan Platform"  
Manager



PAD B4014696 (1960611) - CONFIDENTIAL USE

Mod. RPRO v. 8

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## 1 RATINGS ASSIGNED BY THE MANUFACTURER AS PROVED BY THE TESTS

Oil-immersed power transformer	
Designation	Iraq
Serial number	5520231301
Rated power	400 kVA
Number of phases	3
Rated voltage of the high-voltage winding (primary winding)	11 kV
Rated voltage of the low-voltage winding (secondary winding)	416 V
Rated current of the high-voltage winding (primary winding)	20,99 A
Rated current of the low-voltage winding (secondary winding)	555,1 A
Rated frequency	50 Hz
Connection symbol	Dyn11
Short-circuit impedance	4,64 %
Load loss	4134 W
No-load current	0,61 %
No-load loss	757 W

## 2 ADDITIONAL TYPE TESTS

Not applicable.

## 3 REFERENCE DOCUMENTS

The following reference documents are integral part of this Certificate:

No.	Description	CESI registration
1	Test Report	B4012750
2	Test Report	B4012806
3	Manufacturer's drawings	B4012921

## 4 ADDITIONAL REFERENCES

The conformity of the apparatus is attested with reference to the Standard mentioned in the front sheet and to the following documents:

IEC 60076-1 (2011)	Clauses 11.2 to 11.5
IEC 60076-3 (2013)	Clauses 10 and 11.2

## 5 RECORD OF PROVING TESTS

The table below lists all the tests performed and the references to the relevant Test Reports containing the test values.

No. Standard and clause	Description of tests	Reference documents
IEC 60076-5 clause 4.2	Dynamic ability to withstand short-circuit	B4012806 (*)
IEC 60076-1 clause 11.2	Measurement of winding resistance	B4012750
IEC 60076-1 clause 11.3	Measurement of voltage ratio and check of phase displacement	B4012750
IEC 60076-1 clause 11.4	Measurement of short-circuit impedance and load loss	B4012750
IEC 60076-1 clause 11.5	Measurement of no-load loss and current	B4012750
IEC 60076-3 clause 10	Applied voltage test (AV)	B4012750
IEC 60076-3 clause 11.2	Induced voltage withstand test (IVW)	B4012750

## 6 IDENTIFICATION OF THE APPARATUS

The Manufacturer guarantees that the tested apparatus is manufactured according to the submitted drawings.

CESI checked that these drawings adequately represent in shape and dimensions the essential details and the main parts of the tested apparatus.

These drawings, identified by CESI and numbered B4012921 No.1 to 7 have been returned to the Client.

(\*) Includes calculation of thermal ability to withstand short-circuit for a time of 5 s.