

# Test Confirmation

No.

**L16006**

Duly signed copy 0E

Reference: 141-16/ 1-9 and HV-U-1601

Apparatus: 3-phase oil-insulated type distribution transformer

Type:	Hermetic	Serial-no.:	15022231
Rated power::	2700 kVA	Year of manufacture:	2015
Rated voltage:	31,5±2x2,5% kV / 0,66 kV	Rated frequency:	50 Hz
Vector Group:	Dy 11	LI // AC :	170/- // 70/3 kV
Max. duration of short-circuit:	2 s	Rated impedance voltage:	5,61 %

Manufacturer: Partiluz S.A.  
Luis Braille, 3288 00000 Montevideo, Uruguay

Customer: Partiluz S.A.  
Luis Braille, 3288 00000 Montevideo, Uruguay

Place and Date of Tests: FGH Mannheim • Germany, 16. - 19. February 2016

Test Specification: Technical Specification Nordex K0811\_060164\_EN Rev. 01: 2014,  
IEC publications 60076-5: 2006 Chapter 4.2,  
IEC 60076-1: 2011 and IEC 60076-3: 2013

Test Performed:

- Routine tests of transformer.
- Nine three-phase short-circuit tests with a duration of 0,25 s each with the maximum peak current three times on each limb, to verify the ability to withstand short-circuits.
- Lightning impulse voltage withstand test with -170 kV / -187 kV peak value for the full - / chopped wave.
- Routine tests after Short-circuit test.
- Visual inspection of the active part of transformer.

Test Results:

- a), c), d) The Routine tests and the lightning impulse voltage withstand test did not detect any faults and the measured values remained in the accepted limits.
- b) The oscillograms and the results of the short-circuit reactance measurements before and after each test did not show any defect, which might endanger the safe operation of transformer.  
The maximum increment of the short-circuit reactance has reached 2,93 %, the admissible value for this transformers with circular concentric coils with foil on the low-voltage winding is 4 %.
- e) The visual inspection after all tests did not show any damage against the safe operation of transformer.

**The transformer passed all tests.**



Karl Haitz  
Test Engineer

Mannheim, 23. February 2016      Number of sheets: 2

This document may only be used complete and unabridged.

FGH Engineering & Test GmbH is a laboratory of the



Independent test laboratory accredited acc. to DIN EN ISO/IEC 17025 by Deutsche Akkreditierungsstelle GmbH (DAkkS) in the fields of high-voltage equipment and components, power cables and their accessories.

Member Laboratory of the Short-Circuit Testing Liaison (STL)

## Test documents issued by the FGH Engineering & Test GmbH

### A Type Test Certificate

is issued for complete type tests according to valid standards taking into account valid STL guides.

Equipment to be tested must be clearly identifiable:

- Apparatus by a nameplate according to the relevant standard and by suitable drawings;
- Equipment for which the relevant standard does not require a nameplate, by suitable drawings and descriptions where necessary. In certain cases, a specification of details may be required.

The Type Test Certificate confirms that during all tests of the equipment according to the standard the specified pass criteria for its behaviour during the tests and its conditions after the tests have been fully met.

### A Test Certificate

is issued for equipment having passed parts of the type tests specified in the relevant standards or fulfilling accepted specifications or recommendations.

Equipment to be tested must be clearly identifiable:

- Apparatus by a nameplate according to the relevant standard and by suitable drawings;
- Equipment for which the relevant standard does not require a nameplate, by suitable drawings and descriptions where necessary. In certain cases, a specification of details may be required.

The Test Certificate confirms that during the test of the equipment according to the standard the specified pass criteria for its behaviour during the tests and its conditions after the tests have been fully met.

### A Test Report

is issued for all tests which do not meet the requirements of a Type Test Certificate or a Test certificate and have been performed according to specifications, standards and/or clients' instructions. Similarly, this test report contains all test results, details of the conditions under which the tests were performed, also details relating to the behaviour of the test object, and its condition after the tests.

### An Investigation Report

is issued for investigations which have not the character of proving tests.

### A Test Confirmation

is issued immediately after the tests. It confirms that the tests have been conducted and is valid only until publishing the detailed results in an entire document.

### Photographs and identification documents

Inserted photographs and identification documents (e. g. drawings, parts lists) must bear the FGH-stamp.

In case of electronic photographs the stamp can be omitted.

The customer confirmed by his signature that the test object corresponds to the submitted identification documents. FGH checked the accordance for essential details.

The original identification documents were stamped and signed by FGH. If this document contains electronic identification documents without FGH-stamp, the conformance with the checked, stamped and signed original documents has been verified by FGH.

### With reference to ISO/IEC 17025 the FGH Engineering & Test GmbH states:

- The FGH Engineering & Test GmbH apply the PEHLA Procedure No. 12 for determining the uncertainties of measurement. As long as no explicit statements are made, the uncertainties required by the relevant standards have been complied with.
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- The test results included in the test documents as well as their evaluation relate exclusively to items tested.
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