

# TEST REPORT

NO.1489

Project code: TI/0576-I60044-2

Temperature Rise (1.2Un Continuous & 1.9Un For 30 Sec.)  
Test Report For Voltage Transformer (RU12, 20kV /110V/110V)  
Manufactured By Pars Shar B.C.  
According To IEC 60044-2

Karaj, 18-05-2009

By Order Of Pars Shar B.S., Tehran, Iran

No. of pages

6

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Prepared :Test & Inspection Engineer  
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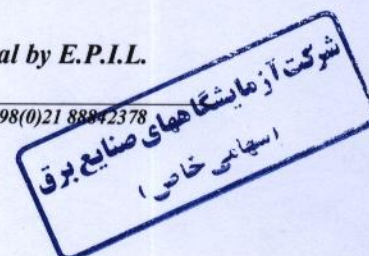
Verified:Test & Inspection Manager  
Sh. Abdolzadeh

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(Representative of Amirkabir University of Technology)  
Dr. B. Vahidi

*This test report does not include an assessment of the manufacturer's production. Conformity of his production with the specimen tested by E.P.I.L is not the responsibility of E.P.I.L*

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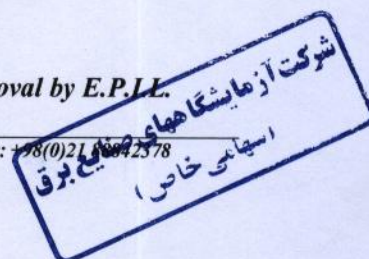
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## 1. GENERAL INFORMATION

### 1.1 Product Information

Equipment under test	: VT (Voltage Transformer)
Type	: RU12
Rated Primary Voltage	: 20000 / $\sqrt{3}$ V
Rated Secondary Voltages	: 110/ $\sqrt{3}$ V & 110/ $\sqrt{3}$ V
Voltage Factor	: 1.9(30s) and 1.2(Continuous)
Secondary Windings	: 1a-1b 2a-2b
Class Of Insulation	: A
Normative document	: IEC 60044-2

### 1.2 Client Information(Manufacturer)

Applicant	: Pars Shar B.C.
Contact person	: Mr. Rahpeyma
Telephone	: +98 - 21 - 88772334
Fax	: +98 - 21 - 88888141
Address	: No. 6, Baghestan Alley, Shad St., Molla Sadra Ave., Tehran 14357, Iran

### 1.3 Tests Performed

Temperature Rise Test (1.2Un Continuous)  
Temperature Rise Test (1.9Un For 30 Sec)

### 1.4 Results Of Tests

Passed : See page 4and 5

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## 2. PERFORMANCE AND RESULTS OF TESTS

### 2.1 Temperature Rise Test (1.2Un Continuous)

#### 2.1.1 Test data

Equipment Under Test	: VT( RU12, 20kV)
Location	: E.P.I.L.
Date	: 11-05-2009
Engineer of EPIL	: Mr. Dezfulian
Engineer of Pars Shar	: Mr. Rahpeyma
Normative document	: IEC 60044-2

#### 2.1.2 Ambient conditions

Ambient Temperature	: 25°C
Relative Humidity	: 40%
Atmospheric Pressure	: 86.5 kPa

#### 2.1.3 Procedure of test

All voltage transformers irrespective of voltage factor and time rating shall be tested at 1,2 times the rated primary voltage.

The test shall be continued until the temperature of the transformer as reached a steady state.(When the rate of temperature rise does not exceed 1K per hour.) The ambient temperature shall be between 10°C and 30 °C.

The transformer shall be mounted in a manner representative of the mounting in service.

The temperature rise of the windings shall be measured by the increase in resistance method.

#### 2.1.4 Acceptance conditions of test

The temperature rise of a voltage transformer at the specified voltage, at the rated burden shall not exceed the appropriate value given in table 3 of IEC 60044-2.

For this VT: The standard value of table 3 = 60 K

#### 2.1.5 Result of test

$R(\text{before test}) = 5138.5 \Omega$  ,  $R(\text{after test}) = 5253.0 \Omega$  ,  $T_1 = 26^\circ \text{C}$   
 $T_2 = (R_2/R_1)(T_1 + 234.5) - 234.5 \rightarrow T_2 = 31.9^\circ \text{C}$

The test was done according to IEC 60044-2, and it passed the test.

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## 2.2 Tempreture Rise Test (1.9Un for 30 Sec.)

### 2.2.1 Test data

Equipment Under Test	: VT( RU12, 20kV)
Location	: E.P.I.L.
Date	: 11-05-2009
Engineer of EPIL	: Mr. Dezfulian
Engineer of Pars Shar	: Mr. Rahpeyma
Normative document	: IEC 60044-2

### 2.2.2 Ambient conditions

Ambient Temperature	: 22°C
Relative Humidity	: 38%
Atmospheric Pressure	: 86.5 kPa

### 2.2.3 Procedure of test

Transformers having a voltage factor of 1.5 for 30 s or 1.9 for 30 s shall be tested at their respective voltage factor for 30 s starting after the application of 1.2 times rated voltage for a time sufficient to reach stable thermal conditions.

### 2.2.4 Acceptance conditions of test

The temperature rise shall not exceed by more than 10 K the value specified in table 3 of IEC 60044-2.

For this VT: The standard value of table 3(60 K)+10 K = 70 K

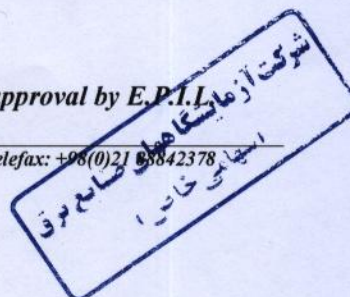
### 2.2.5 Result of test

$R(\text{before test}) = 5253.0 \Omega$  ,  $R(\text{after test}) = 5271.0 \Omega$  ,  $T1=31.9^\circ\text{C}$   
 $T2=(R2/R1)(T1+234.5)-234.5 \rightarrow T2=32.8^\circ\text{C}$

The test was done according to IEC 60044-2 and it passed the test.

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**Figures:**



**Figure 1; Equipment-under temperature rise test**

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