

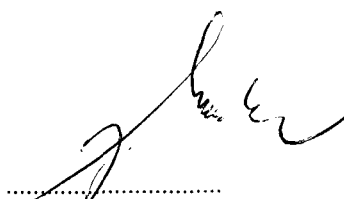


**Electrotechnical Engineering and Production**, joint-stock company  
619 00 BRNO, Vídeňská 117

REPORT OF PERFORMANCE No: 82-0495

INDOOR INSTRUMENT CURRENT TRANSFORMERS TYPE CTS 12, CTS25



  
Jaromír Mudra, Phd

Brno, June 27, 1996

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**TEST REPORT** No 82 - 0495  
Tested Instrument Current  
subject: Transformers

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pages: 6

**TYPE:**

CTS 12  
CTS 25

**KIND OF TEST:** partial test

**TESTING ACC. TO:**

ČSN 35 1360  
IEC 185 - 1987  
Appendix 2 IEC 185-1995-08

**RATED VALUES:**

see text

**TEST REQUEST ISSUED BY:**

Český metrologický institut  
Okružní 31  
638 00 Brno

**ORDER NUMBER:**

**TESTED SPECIMEN REG. NUMBER:**

Reg. No.148/96 - 153/96

**ENVIRONMENTAL CONDITIONS:**

TEMPERATURE: 22 to 24°C  
ATMOSPHERIC PRESSURE: 1016.2 hPa  
AIR HUMIDITY: 62%

**PRODUCT MANUFACTURER**

KPB Intra, s.r.o.  
Fučíkova 860  
685 01 Bučovice

**THIS TEST REPORT  
INCLUDES:**

TEXT PAGES: 6  
TABLES:  
OSCILLOGRAMMES:  
DIAGRAMMES:  
DRAWINGS:  
PHOTOS:

**DISTRIBUTION  
LIST:**

ČMI 2x  
IVEP ŘZ 1x  
IVEP  
archive 1x

**TESTED SPECIMENS DELIVERED ON:**

June 12, 1996

**TEST RESULT:**

The CTS 12 instrument current transformers, prod. No. 1200001, 1200002, 1200003 and CTS 25, prod. No. 2500001, 2500002 and 2500004, manufactured by the company KBP Intra, s.r.o

**c o m p l y**

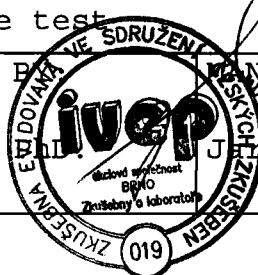
with the insulation test requirements and partial discharge measurement to ČSN 35 1360, IEC 185 standards and Appendix 28 IEC 185-1995-0 as partial type test

**DATE OF TEST:**

June 17 to 25  
1996

**TEST PERFORMED BY: MANAGER OF TEST LAB.**

Jaromír Mudra, PhD. Jaromír Mudra, PhD.





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Instrument Current Transformer

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On the days of June 17 and 25, 1998, and based on the agreement No. 13/Tr. 01/196 ČMI Praha, branch Brno, insulation tests and measurement of partial discharges was carried out on instrument current transformers of CTS 12 and CTS 25 type, manufactured by KPB Intra s.r.o. Tests corresponded to ČSN 35 1360 and IEC 185 - 1997 standards and Appendix 2 IEC 185-1995-08 in the scope of partial type test.

#### **Technical parametres of tested transformers**

1. Instrument current transformer, CTS 12.L type  
prod. No. 1200001, reg. No. 148/96

$U_m = 12 \text{ kV (35/75 kV)}, I_N = 20/5/1 \text{ A}$

$I_{th} = 16 \text{ kA}, I_{dyn} = 40 \text{ kA}$

2. Instrument current transformer, CTS 12.S type  
prod. No. 1200002, reg. No. 149/96

$U_m = 12 \text{ kV (35/75 kV)}, I_N = 200 - 400/5/5 \text{ A}$

$I_{th} = 25 - 50 \text{ kA}, I_{dyn} = 63 - 125 \text{ kA}$

3. Instrument current transformer, CTS 12.S type  
prod. No. 1200003, reg. No. 150/96

$U_m = 12 \text{ kV (35/75 kV)}, I_N = 3200/5/1 \text{ A}$

$I_{th} = 80 \text{ kA}, I_{dyn} = 200 \text{ kA}$

4. Instrument current transformer, CTS 25 type  
prod. No. 2500001, reg. No. 151/96


$U_m = 25 \text{ kV (55/125 kV)}, I_N = 10/1/5 \text{ A}$

$I_{th} = 6.3 \text{ kA}, I_{dyn} = 16 \text{ kA}$

5. Instrument current transformer, CTS 25 type  
prod. No. 2500002, reg. No. 152/96

$U_m = 25 \text{ kV (55/125 kV)}, I_N = 400-800/5/5 \text{ A}$

$I_{th} = 25 - 50 \text{ kA}, I_{dyn} = 63 - 125 \text{ kA}$

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6. Instrument current transformer, CTS 25 type  
prod. No. 2500004, reg. No. 153/96

$U_m = 25 \text{ kV (55/125 kV)}, I_N = 1000/5/5 \text{ A}$   
 $I_{th} = 63 \text{ kA}, I_{dyn} = 63 - 160 \text{ kA}$

Testing equipment

Impulse generator 1.2 MV, manufactured by Haefely; 1.2/50  $\mu$ s;  
30 kJ  
Two-beam impulse oscilloscope, Haefely, 72 E type  
Impulse, peak oscilloscope, Haefely, 64 M type  
Transformer cascade, 500 kV, 150 kVA, manufactured by  
Siemens  
Capacitive voltage divider, 600 kV, Haefely, with  
Trüb-Taüber peak voltmeters  
Coupling capacitor 1000 pF, 100 kV, Tettex  
Testing transformer 100 kV, manufactured by EJF  
Partial discharges detector, 9124 type, Tettex

Test procedures and scope of the testing

Voltage tests were carried out in the HV hall with the 1.2/50  $\mu$ s  
lightning impulse test and short-time AC 50 Hz/1 min voltage  
conformably to the ČSN 35 1360. Testing voltage was conducted  
to the primary interconnected terminals, all secondary terminals  
and frame were earthed.

Note: Values of tested voltages to ČSN 35 1360 are higher  
then to IEC 185.

Measurement of partial discharges was carried out in shielded  
chamber, testing voltage was conducted by wires diam. 28mm  
to interconnected primary terminals, all secondary terminals  
were short-circuited and frame earthed. Partial discharges  
values were measured by 1.2  $U_m$  and 1.2/ $\sqrt{3}$   $U_m$  to Appendix 2  
IEC 185-1995-08, procedure B and tab. 2D.

Test results

1. Instrument current transformer, CTS 12.L type,  
prod. No. 1200001

a) Impulse test

+ U = 75 kV/15 impulse/without flashover - test passed  
- U = 75 kV/15 impulse/without flashover - test passed



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b) Power-frequency withstand test

$\sim U = 35 \text{ kV/50 Hz/1 min.}$

- test passed

c) Partial discharge measurement

$\sim 1.2 U_m = 14.4 \text{ kV} - Q = 2.0 \text{ pC}$

- test passed

$\sim 1.2 U_m / \sqrt{3} = 8.31 \text{ kV} - Q = 0.6 \text{ pC}$

- test passed

**2. Instrument current transformer, CTS 12.S type,  
prod. No. 1200002**

a) Impulse test

+  $U = 75 \text{ kV/15 impulse/without flashover}$

- test passed

-  $U = 75 \text{ kV/15 impulse/without flashover}$

- test passed

b) Power-frequency withstand test

$\sim U = 35 \text{ kV/50 Hz/1 min.}$

- test passed

c) Partial discharge measurement

$\sim 1.2 U_m = 14.4 \text{ kV} - Q = 1.0 \text{ pC}$

- test passed

$\sim 1.2 U_m / \sqrt{3} = 8.31 \text{ kV} - Q = 0.6 \text{ pC}$

- test passed

**3. Instrument current transformer, CTS 12.S type,  
prod. No. 1200003**

a) Impulse test

+  $U = 75 \text{ kV/15 impulse/without flashover}$

- test passed

-  $U = 75 \text{ kV/15 impulse/without flashover}$

- test passed

b) Power-frequency withstand test

$\sim U = 35 \text{ kV/50 Hz/1 min.}$

- test passed


c) Partial discharge measurement

$\sim 1.2 U_m = 14.4 \text{ kV} - Q = 40.0 \text{ pC}$

- test passed

$\sim 1.2 U_m / \sqrt{3} = 8.31 \text{ kV} - Q = 0.5 \text{ pC}$

- test passed

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**4. Instrument current transformer, CTS 25 type,  
prod. No. 2500001**

a) Impulse test

+ U =125 kV/15 impulse/without flashover - test passed  
- U =125 kV/15 impulse/without flashover - test passed

b) Power-frequency withstand test

~ U = 55 kV/50 Hz/1 min. - test passed

c) Partial discharge measurement

$\sim 1.2 U_m = 30.0 \text{ kV} - Q = 2.0 \text{ pC}$  - test passed  
 $\sim 1.2 U_m / \sqrt{3} = 17.3 \text{ kV} - Q = 0.5 \text{ pC}$  - test passed

**5. Instrument current transformer, CTS 25 type,  
prod. No. 2500002**

a) Impulse test

+ U =125 kV/15 impulse/without flashover - test passed  
- U =125 kV/15 impulse/without flashover - test passed

b) Power-frequency withstand test

~ U = 55 kV/50 Hz/1 min. - test passed

c) Partial discharge measurement

$\sim 1.2 U_m = 30.0 \text{ kV} - Q = 1.5 \text{ pC}$  - test passed  
 $\sim 1.2 U_m / \sqrt{3} = 17.3 \text{ kV} - Q = 0.5 \text{ pC}$  - test passed

**6. Instrument current transformer, CTS 25 type,  
prod. No. 2500004**

a) Impulse test

+ U =125 kV/15 impulse/without flashover - test passed  
- U =125 kV/15 impulse/without flashover - test passed

b) Power-frequency withstand test

~ U = 55 kV/50 Hz/1 min. - test passed

c) Partial discharge measurement

$\sim 1.2 U_m = 30.0 \text{ kV} - Q = 43 \text{ pC}$  - test passed  
 $\sim 1.2 U_m / \sqrt{3} = 17.3 \text{ kV} - Q = 3.5 \text{ pC}$  - test passed