

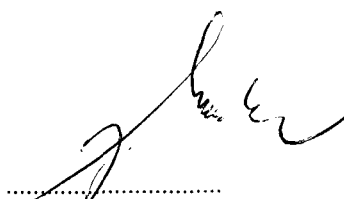


Electrotechnical Engineering and Production, joint-stock company
619 00 BRNO, Vídeňská 117

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

Page No.:2

Number of
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

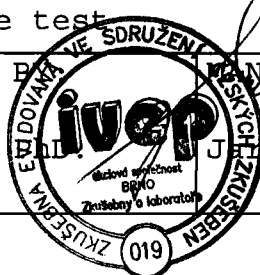
with the insulation test requirements and partial discharge measurement to ČSN 35 1360, IEC 185 standards and Appendix 28 IEC 185-1995-0 as partial type test

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 μ 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 μ 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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Instrument Current Transformer

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b) Power-frequency withstand test

~ U = 35 kV/50 Hz/1 min.

- test passed

c) Partial discharge measurement

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

- test passed

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

- test passed

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

a) Impulse test

+ U = 75 kV/15 impulse/without flashover

- test passed

- U = 75 kV/15 impulse/without flashover

- test passed

b) Power-frequency withstand test

~ U = 35 kV/50 Hz/1 min.

- test passed

c) Partial discharge measurement

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

- test passed

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

- test passed

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

a) Impulse test

+ U = 75 kV/15 impulse/without flashover

- test passed

- U = 75 kV/15 impulse/without flashover

- test passed

b) Power-frequency withstand test

~ U = 35 kV/50 Hz/1 min.

- test passed


c) Partial discharge measurement

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

- test passed

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

Brno, June 27, 1996