



Technical Laboratory

TEST REPORT No. 1VLR 016393

Page 1 of 5

issued by Technical laboratory in accordance with EN 17025

Test Object : Current Instrument Transformer

Type : CTS 25 X Sch

Ratings:

Design: cast resin insulated for indoor use				
Serial number:		022439 / 2005	022440 / 2005	022442 / 2005
Rated primary current	[A]	5	100	300
Rated secondary current	[A]	5	1	5 / 5
Highest system voltage	[kV]	25	25	25
Power frequency withstand voltage	[kV]	50	50	50
Lightning-impulse withstand voltage	[kV]	125	125	125
Rated output	[VA]	10	30	15 / 15
Accuracy class		0,2S	0,5	0,5 / 0,5
Rated short - time thermal current	[kA]	2	20	31,5
Rated dynamic current	[kA]	5	50	65
Rated frequency	[Hz]	50	50	50
n		< 5	< 10	< 5 / < 5

Manufacturer: KPB Intra s.r.o, BUČOVICE

Test performed : Dielectric tests according to requirements of customer:
Lightning impulse test on primary winding
Power - frequency withstand test on primary windings
Partial discharge measurement

Test specification : ČSN EN 60044 – 1(2001), IEC 60044 – 1(1997)
KPB Intra s.r.o, order Nr. 003000366/2005

Test results : The transformers CTS 25 X Sch, serial number 022439 / 2005, 022440 / 2005 and 022442 / 2005 have been tested in accordance with IEC 60044-1 and ČSN EN 60044 – 1. Transformers are considered to comply with the above standards.

Date of test : 16. 5. 2005

23. 5. 2005

Date of issue

Test manager

Laboratory manager

This test concern exclusively to the object tested. This test report is issued by Technical Laboratory that is member of CTLA (Association of Czech Testing Rooms and Laboratories) with right to use cancellation No. 028. The report shall not be reproduced except in full without the written approval of the Technical Laboratory ABB s.r.o. Unit EJF: Technical laboratory Videňská 117 CZ 619 00 Brno Fax: +420 5 4715 2302 Phone: +420 547152365

Headquarters:
ABB s.r.o.
Sokolovska 84-86
186 00 Prague 8
Czech Republic

Mail Address:
ABB s.r.o.
Videnska 117
619 00 Brno
Czech Republic

Phone: + 420 5 4715 2469
Fax: + 420 5 4715 2950





- The transformers CTS 25 X Sch, serial number 022439 / 2005, 022440 / 2005 and 022442 / 2005 have been subjected to the dielectric tests in compliance with Standard ČSN EN 60044-1(2001) and IEC 60044-1 (1997):

TEST PROGRAM:

standard

- | | |
|---|---|
| 1. Verification of terminal markings | ČSN EN 60044-1, cl. 8.1
IEC 60044-1, cl. 8.1 |
| 2. Lightning impulse test | ČSN EN 60044-1, cl. 7.3
IEC 60044-1, cl. 7.3 |
| 3. Power - frequency withstand test on primary windings | ČSN EN 60044-1, cl. 8.2
IEC 60044-1, cl. 8.2 |
| 4. Partial discharge measurement | ČSN EN 60044-1, cl. 8.2
IEC 60044-1, cl. 8.2 |

Results of tests performed on transformer CTS 25 X:

Serial No.: 022439 / 2005

page 3

Serial No.: 022440 / 2005

page 4

Serial No.: 022442 / 2005

page 5

All tests and measurements have been performed in Technical laboratory ABB s.r.o EJF, Brno.

Ambient air conditions during tests:

Temperature:	22,2° C
Rel. humidity:	38%
Pressure:	1009 hPa

Devices and equipment used:

Test transformer 100 kV Nr. 93425

Measuring system and PD - detector TETTEX type 9124 Nr. 136810

Impulse generator TUR Dresden Nr. 94272

Digital Impulse Voltage Measuring System TR – AS 25-8 , Dr.STRAUSS

List of symbols used::

I_p	Rated primary current	[A]
I_s	Rated secondary current	[A]
P	Rated output	[VA]
U_m	Highest system voltage	[kV]
f	Rated frequency	[Hz]
I_{th}	Rated short - time thermal current	[kA]
I_{dyn}	Rated dynamic current	[kA]
U_{zk}	Test voltage	[kV]



Technical Laboratory

TEST REPORT No. 1VLR 016393

Page 3 of 5

issued by Technical laboratory in accordance with EN 17025

Standard: ČSN EN 60044 – 1 (2001), IEC 60044 – 1 (1997)					
TYPE : CTS 25 X Sch			Serial No. : 022439 / 2005		
RATINGS :					
I _p [A]	5	I _s [A]	5	P [VA]	10
Accuracy	0,2S	n	< 5	ALF	--
U _m / U _{zk} [kV]	25 / 50 / 125	f [Hz]	50	I _{th} / I _{dvn} [kA]	2 / 5

1. Verification of terminal markings : ČSN EN 60044-1, cl. 8.1, IEC 60044-1, cl. 8.1

- It was verified that the terminal markings are correct and in accordance with drawings.

2. Lightning - impulse test: ČSN EN 60044-1, cl. 7.3, IEC 60044-1, cl. 7.3

- Test voltage applied between short-circuited primary winding and earth. The short-circuited secondary windings and the frame connected to earth.
- Voltage form was in accordance with IEC 60060-1

Test voltage	impulses	flashovers	Result:
+ 125 kV	15	0	has passed
- 125 kV	15	0	has passed

3. Power-frequency withstand test on primary windings: ČSN EN 60044-1, cl. 8.2, IEC 60044-1, cl. 8.2

- Test voltage applied between short-circuited primary winding and earth. The short-circuited secondary windings and the frame connected to earth:

Test voltage	frequency	test duration	Result:
50 kV	50 Hz	60 sec.	has passed

4. Partial discharge measurement: ČSN EN 60044-1, cl. 8.2, IEC 60044-1, cl. 8.2

- The test voltage applied between short-circuited primary winding and earth. The short-circuited secondary windings and the frame connected to earth:

Test voltage	Partial discharge level	Result:
$U_{zk} = 1,2 U_m = 30$ kV	$q = 8$ pC	has passed
$U_{zk} = 1,2 U_m / \sqrt{3} = 17,3$ kV	$q < 1$ pC	has passed



Technical Laboratory

TEST REPORT No. 1VLR 016393

Page 4 of 5

issued by Technical laboratory in accordance with EN 17025

Standard: ČSN EN 60044 – 1 (2001), IEC 60044 – 1 (1997)					
TYPE : CTS 25 X Sch			Serial No. : 022440 / 2005		
RATINGS :					
I _p [A]	100	I _s [A]	1	P [VA]	30
Accuracy	0,5	n	< 10	ALF	--
U _m / U _{zk} [kV]	25 / 50 / 125	f [Hz]	50	I _{th} / I _{dyn} [kA]	20 / 50

1. Verification of terminal markings : ČSN EN 60044-1, cl. 8.1, IEC 60044-1, cl. 8.1

- It was verified that the terminal markings are correct and in accordance with drawings.

2. Lightning - impulse test: ČSN EN 60044-1, cl. 7.3, IEC 60044-1, cl. 7.3

- Test voltage applied between short-circuited primary winding and earth. The short-circuited secondary windings and the frame connected to earth.
- Voltage form was in accordance with IEC 60060-1

Test voltage	impulses	flashovers	Result:
+ 125 kV	15	0	has passed
- 125 kV	15	0	has passed

3. Power-frequency withstand test on primary windings: ČSN EN 60044-1, cl. 8.2, IEC 60044-1, cl. 8.2

- Test voltage applied between short-circuited primary winding and earth. The short-circuited secondary windings and the frame connected to earth:

Test voltage	frequency	test duration	Result:
50 kV	50 Hz	60 sec.	has passed

4. Partial discharge measurement: ČSN EN 60044-1, cl. 8.2, IEC 60044-1, cl. 8.2

- The test voltage applied between short-circuited primary winding and earth. The short-circuited secondary windings and the frame connected to earth:

Test voltage	Partial discharge level	Result:
$U_{zk} = 1,2 U_m = 30$ kV	$q = 13$ pC	has passed
$U_{zk} = 1,2 U_m / \sqrt{3} = 17,3$ kV	$q < 1$ pC	has passed



Technical Laboratory

TEST REPORT No. 1VLR 016393

Page 5 of 5

issued by Technical laboratory in accordance with EN 17025

Standard: ČSN EN 60044 – 1 (2001), IEC 60044 – 1 (1997)					
TYPE : CTS 25 X Sch			Serial No. : 022442 / 2005		
RATINGS :					
I _p [A]	300	I _s [A]	5 / 5	P [VA]	15 / 15
Accuracy	0,5 / 0,5	n	< 5 / < 5	ALF	--
U _m / U _{zk} [kV]	25 / 50 / 125	f [Hz]	50	I _{th} / I _{dvn} [kA]	31,5 / 65

1. Verification of terminal markings : ČSN EN 60044-1, cl. 8.1, IEC 60044-1, cl. 8.1

- It was verified that the terminal markings are correct and in accordance with drawings.

2. Lightning - impulse test: ČSN EN 60044-1, cl. 7.3, IEC 60044-1, cl. 7.3

- Test voltage applied between short-circuited primary winding and earth. The short-circuited secondary windings and the frame connected to earth.
- Voltage form was in accordance with IEC 60060-1

Test voltage	impulses	flashovers	Result:
+ 125 kV	15	0	has passed
- 125 kV	15	0	has passed

3. Power-frequency withstand test on primary windings: ČSN EN 60044-1, cl. 8.2, IEC 60044-1, cl. 8.2

- Test voltage applied between short-circuited primary winding and earth. The short-circuited secondary windings and the frame connected to earth:

Test voltage	frequency	test duration	Result:
50 kV	50 Hz	60 sec.	has passed

4. Partial discharge measurement: ČSN EN 60044-1, cl. 8.2, IEC 60044-1, cl. 8.2

- The test voltage applied between short-circuited primary winding and earth. The short-circuited secondary windings and the frame connected to earth:

Test voltage	Partial discharge level	Result:
$U_{zk} = 1,2 U_m = 30$ kV	$q = 6$ pC	has passed
$U_{zk} = 1,2 U_m / \sqrt{3} = 17,3$ kV	$q < 1$ pC	has passed