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and with BGBl. I Nr. 244/2005 as certification body for personnel



Test Report

Project Designation

TYPE TEST
AT LOW-VOLTAGE
CYLINDRICAL FUSE-LINKS
FOR THE PROTECTION OF
SOLAR PHOTOVOLTAIC ENERGY SYSTEMS
TYPE CH 10x38 gPV

Client

ETI Elektroelement d.d.
Obrezija 5
1411 Izlake
SLOVENIA

Order from / No. 06/2011 / ---

Project Number 2.03.02598.1.0/CH10x38/gPV/1000VDC Test Engineer Ing. J. Ainetter

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Annex: Number of pages	CB - Test Report No. 2.03.02598.1.0/CH10x38/gPV/1000VDC/CB (26 pages)

The results relate exclusively to the terms tested.

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Test item

Identification:

Low-voltage cylindrical fuse-links for the protection of solar photovoltaic energy systems
type CH 10x38 gPV

Manufacturer: ETI Elektroelement d.d.
Place of manufacture: 1411 Izlake, Obrezija 5
Trademark: ETI
Rated voltage(s): 1000V d.c.
Rated current(s): 2A, 4A, 6A, 8A, 10A, 12A, 16A, 20A
Utilization category: gPV

Technical data and description:

See page 4

Testing location, Period of testing

Testing location:

AIT Austrian Institute of Technology GmbH
Business Unit Electric Energy Systems
Power Service Center
Giefinggasse 2
1210 Vienna
AUSTRIA

Period of testing:

06/2011 to 09/2011 and 08/2012

Test(s)

Test(s) performed:

Type test

Test standard(s):

IEC 60269-1 Ed. 4.1:2009
IEC 60269-6 Ed. 1.0:2010

Test procedure(s):

CB-Scheme

Result

The low-voltage cylindrical fuse-links for the protection of solar photovoltaic energy systems
type CH 10x38 gPV have passed the type test successfully.

Test Engineer

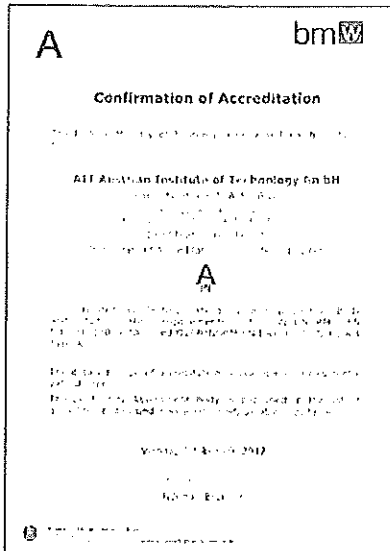
Ing. J. Ainetter



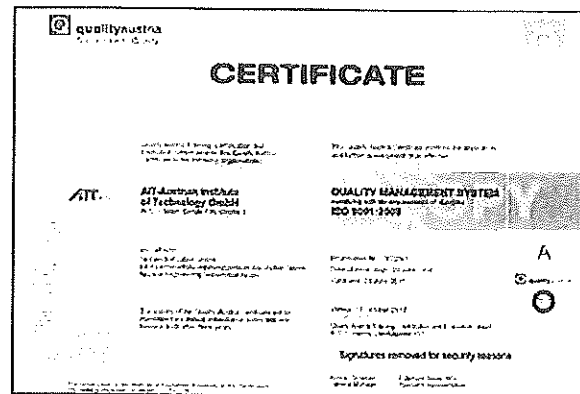
Project Engineer,
technical responsibility

Ing. K. Farthofer

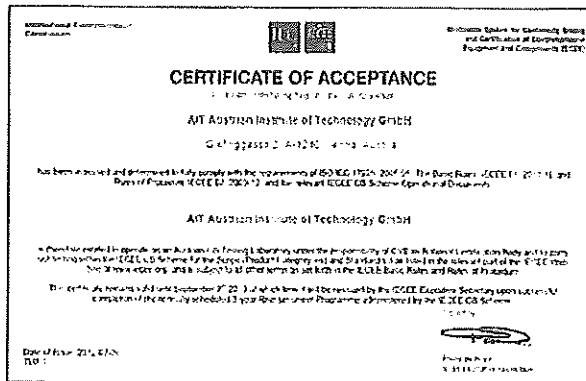
Testing laboratory



ACCREDITED
according to
EN ISO/IEC 17025
confirmed by BMWFJ with GZ: 92714/237-IV/9/00

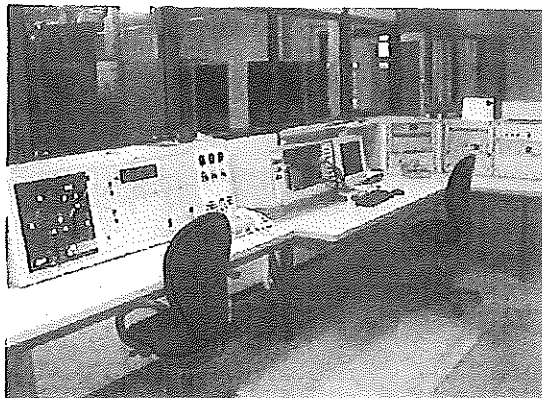


CERTIFICATED
according to
ISO 9001
confirmed by Quality Austria with Reg. No. 00229/1

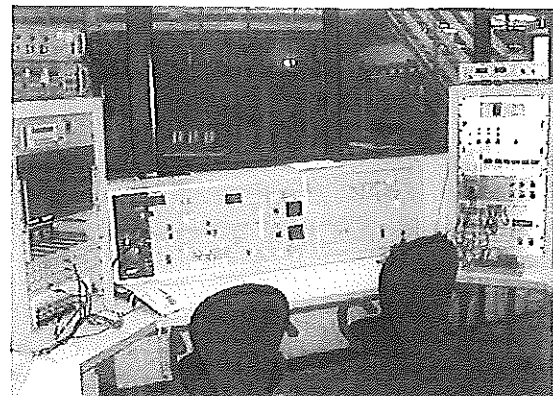


RECOGNIZED CB TESTING LABORATORY
confirmed by International Electrotechnical Commission
under the responsibility of OVE
as the National Certification Body

POWER SERVICE CENTER:



Control station for tests up to 15kA



Control station for tests above 15kA

Technical data and description

Test item	Low-voltage cylindrical fuse-links for the protection of solar photovoltaic energy systems
Model/Type reference	CH 10x38 gPV
Manufacturer	ETI Elektroelement d.d.
Place of manufacture	Slovenia
Size	10x38
Nature of supply	d.c.
Utilization category	gPV
Rated voltage	1000V
Rated current	2A, 4A, 6A, 8A, 10A, 12A, 16A, 20A
Rated breaking capacity	10kA
Material of fuse-link contacts	CuZn gal. Ag
Material of fuse-link body	Cordierite C410

Measuring equipment

Measured quantity	Device	Manufacturer	Code
Voltage (up to 15kA)	Voltage divider 1:2000 Difference amplifier AM 502 Signal memory recorder TA 800	AIT Tektronix W&W	- AM 502/1 TRA800
Current (up to 15kA)	Lin. current transformer LGSSO Burden 1Ω Signal memory recorder TA 800	Ritz AIT W&W	WLIN5000/1 - TRA800
Voltage (above 15kA)	3-channel insulating measuring amplifier Arcus Signal memory recorder Nicolet	Rohrer W&W	T908D 2580-P
Current (above 15kA)	Lin. current transformer LGSSO Burden 0,7mΩ Signal memory recorder Nicolet	Ritz AIT W&W	WLIN6000/1...3 - 2580-P
Current (tests at reduced voltage)	Current transformer GE 4461 Current transformer AETT10 True-RMS amperemeter KI. 0,5 Digital multimeter Fluke 185	Goerz Siemens Norma Fluke	WI600/1...3 WI4000/1...3 A0,5/1, /4 FLUKE185/1, /2
Voltage drop	Digital multimeter Fluke 185	Fluke	FLUKE185/1
Internal resistance	Resistance microhm meter 300/0	Stetter	MICROHM
Dielectric properties	High-voltage test equipment 90-1F with measuring equipment Impulse tester 35 Impulse voltmeter 64M Oscilloscope 9430	Elabo Haefely Haefely Le Croy	HSG5KV G304 G502 G805
Time	Signal memory recorders Digital stopwatch	W&W Quantum	TRA800, 2580-P 938-3
Temperature	Data logger switch unit 34970A Temperature meter TESTO 901	Agilent Testoterm	942 TESTO
Heat, Humidity	Environmental chamber HC7507 with measuring equipment	Heraeus	HC7507
Resistance to rusting	Test chamber C330	Liebich	77
Torque	Torque meter	Rahsol	TM/1
Clearances, creepage distances	Digital slide gauge CD-20D	Mitutoyo	SCHUB
Dimensions	Digital slide gauge CD-20D	Mitutoyo	SCHUB