INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC SYSTEM FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE IN EXPLOSIVE ATMOSPHERES (IECEx SYSTEM)

Circulation to: Ex Management Committee, ExMC

TITLE: IECEx Re-Assessment Report for the continued acceptance of NANIO CCVE as an Accepted ExTL in the IECEx System and an extension of scope.

INTRODUCTION

This document contains the IECEx scheduled 5 year Re-assessment Report for NANIO CCVE, Accepted IECEx Test Laboratory (ExTL). During the re-assessment visit an assessment for an extension of scope was also carried out.

ExMC Members are asked to consider NANIO CCVE's request for an extension of scope as identified in 1.6 of this report.

Please complete and return the completed voting form to the Secretariat by 2009 12 31

Your speedy response to the voting process will be very much appreciated.

Chris Agius

IECEx Secretariat

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IECEx ASSESSMENT REPORT FOR ExTL NANIO CCVE (IECEx TEST LABORATORY)

Type of Assessment: (please mark)

Initial assessment for Candidate ExTL

Re-Assessment of ExTL **X**

Scope Extension of ExTL **X**

1. OBJECT AND FIELD OF APPLICATION

1.1. ***Country:***
Russian Federation (RU)

1.2. ***Name of Candidate TL***
Testing Laboratory of Non-profit independent research organisation
Certification Centre of explosion-proof and mine electrical equipment
(TL NANIO CCVE)

Legal address: 5-403 Electrolitny proyezd, Moscow, 115230, Russian Federation
P.O. Box 22, Moscow, 109377, Russian Federation
Telephone/Telefax No: (495) 557-82-44, 558-8141, 558-8353
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e-mail: ccve@ccve.ru

1.3. Members of the Assessment Team
Jim Munro –Team Leader
Heinz Berger – Expert Assessor

1.4. ***Place and Date of Assessment***
NANIO CCVE
OJSC Plant ECOMASH, VUGI, Lynbertsy Moscow region 140004, RF
7-9 July 2009

1.5. ***Assessment References***

i) IECEx 02 Third Edition 2006-11 IECEx Scheme rules of procedure
ii) IECEx Operational Document OD 003 IECEx Assessment procedures
iii) IECEx Operational Document OD 009 Issuing of CoCs, ExTRs and QARs
iv) ISO/IEC 17025:2005
v) IECEx Technical Guidance Documents (TGDs)
vi) ExTAG decision sheets (DSs)
vii) ExTL application documents dated 25 February 2009

1.6. Scope of Application

Existing scope:

Number	Title
60079-0 Edition 5	Explosive atmospheres - Part 0: Equipment - General requirements
60079-1 Edition 6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures “d”
60079-2 Edition 5	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure «p»
60079-5 Edition 3	Explosive atmospheres - Part 5: Equipment protection by powder filling «q»
60079-6 Edition 3	Explosive atmospheres - Part 6: Equipment protection by oil immersion «o»
60079-7 Edition 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
60079-11 Edition 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety “i”
60079-15 Edition 3	Electrical apparatus for explosive gas atmospheres - Part 15: Construction, test and marking of type of protection "n" electrical apparatus
60079-18 Edition 3	Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation "m" electrical apparatus

Scope extension requested:

Number	Title
60079-25 Edition 1	Electrical apparatus for explosive gas atmospheres - Part 25: Intrinsically safe systems
60079-26 Edition 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
60079-27 Edition 2	Electrical apparatus for explosive gas atmospheres - Part 27: Fieldbus intrinsically safe concept (FISCO) and Fieldbus non-incendive concept (FNICO)
60079-30-1 Edition 1	Explosive atmospheres – Part 30-1: Electrical resistance trace heating – General and testing requirements

Number	Title
60079-31 Edition 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
61241-0 Edition 1	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
61241-1 Edition 1	Electrical apparatus for use in the presence of combustible dust Part 4: Protection by enclosures "tD"
61241-4 Edition 1	Electrical apparatus for use in the presence of combustible dust Part 4: Type of protection "pD"
61241-11 Edition 1	Electrical apparatus for use in the presence of combustible dust – Part 11: Protection by intrinsic safety 'iD'
61241-18 Edition 1	Electrical apparatus for use in the presence of combustible dust Part 18: Protection by encapsulation "mD"
62013-1 Edition 2	Caplights for use in mines susceptible to firedamp Part 1: General requirements - Construction and testing in relation to the risk of explosion
62013-2 Edition 2	Caplights for use in mines susceptible to firedamp Part 2: Performance and other safety-related matters

1.7. *Candidate TL Persons Interviewed*

Name	Position (at time of assessment)
Boris V. Chernov	Head of TL NANIO CCVE, Dr Sc (Tech), Tester
Nikolay N. Prelovski	Deputy Head of TL NANIO CCVE , (QMS Representative, Head of Testing Group), Tester
Boris A. Rafalovich	Deputy Head of TL NANIO CCVE (technical issues) , Tester
Viktor P. Vinogradov	Tester
Yuriy D. Zhukovin	Tester
Yuriy V. Kovorov	Tester
Mikhail N. Vasilchikov	Tester
Vladimir V. Popov	Tester, Person in charge of safety engineering
Arkadi P. Marshanov	Tester, Persons in charge of repair, maintenance and metrological support of test and measurement equipment
Viktor V. Ershov	Tester

Note: three days before the assessment visit Viktor I. Serov, the General Manager and CEO of Nanio CCVE died. The above list reflects the positions held at the time of the assessment but elsewhere in this report, including the organization charts, the titles have been updated to show the subsequent organization structure.

1.8. Legal Entity of The Candidate TL

The Testing Laboratory is part of the Non-profit independent research organisation Certification Centre of explosion-proof and mine electrical equipment (NANIO CCVE).

1.9. *Associated ExCB*

The ExCB is integral with the ExTL: ExCB NANIO CCVE.
Associated ExCB NANIO CCVE and ExTL NANIO CCVE are located at the address: OJSC „Plant ECOMASH", VUGI, Lynbertsy, Moscow region, 140004, Russian Federation.

The ExCB is independent of manufacturers, sellers and users of certified products. It is located at the same address as the ExTL.

1.10. *Financial Support*

NANIO CCVE is a self supporting non-profit organisation. The body relies on fees charged to applicants for certification and testing.

1.11. History

The laboratory was part of the former Skochinsky Institute of Mining. This institute had been in operation since 1927. In 1997 it was changed to a non-profit independent research organisation NANIO CCVE. Much of its facilities and many of its staff came from the former Skochinsky Institute of Mining located near the same site. In April 2004 NANIO CCVE was accepted in the IECEx Scheme as an ExCB and an ExTL. NANIO CCVE is staffed with 2 Doctors of Science and 7 Candidates of Science.

NANIO CCVE is accepted in the GOST R Certification System as:

- Certification Body of Explosion-Proof and Mine Electrical Equipment (CB CCVE);
- Certification Body of Mining Equipment (CB ME);
- Certification Body of Quality Management Systems (CB QMS);
- Testing Laboratory (TL CCVE).

2. ORGANISATION

2.1. Names, Titles and Experience of the Senior Executives

Name	Title	Experience Years (Ex/Total)
Boris V. Chernov	Head of TL NANIO CCVE and Technical Director	21/35
Viktor V. Ershov	Deputy Head of TL NANIO CCVE , QMS Representative	3/34
Boris A. Rafalovich	Deputy Head of TL NANIO CCVE (technical issues)	35/47
Nikolay N. Prelovskiy	Test Group Manager	11/28

2.2. Name, Title and Experience of the Quality Management Representative

Name	Title	Experience Years
Viktor V. Ershov	Deputy Head of TL NANIO CCVE , QMS Representative	3 years

Name	Title	Experience Years
Nikolay N. Prelovskiy	Head of Testing Group	11 years
Yulia V. Tikhonenko	Quality Manager	6 years

2.3. Name and Title of Nominated Principal Contact

Name	Title	Comments - (Ex/Total Years)
Boris V. Chernov	Head of TL NANIO CCVE and Technical Director	21/35
Nikolay N. Prelovskiy	Test Group Manager	11/28
Viktor V. Ershov	Deputy Head of TL NANIO CCVE , QMS Representative	3/34
Boris A. Rafalovich	Deputy Head of TL NANIO CCVE (technical issues)	35/47

2.4. Employees

Name	Title	Experience (Ex/Total Years)
1 Yulia V. Tikhonenko	Quality Manager	6/15
2 Viktor P. Vinogradov	Tester	11/48
3 Vitaly B. Solntsev	Tester	11/33
4 Yuriy D. Zhukovin	Tester	13/38
5 Yuriy V. Kovorov	Tester	11/41
6 Mikhail N. Vasilchikov	Tester	11/44
7 Sergey V. Serov	Tester	11/36
8 Olga B. Malkovich	Tester	10/10
9 Andrey E. Kiselev	Tester	6/30
10 Viktor I. Mikryukiov	Tester	28/45
11 Vladimir V. Popov	Tester, Person in charge of safety engineering	11/37
12 Arkadi P. Marshanov	Tester, Persons in charge of repair, maintenance and metrological support of test and measurement equipment	13/49
13 Viktor V. Ershov	Tester	3/34
14 Igor S. Timofeev	Tester	11/34
15 Viktor.I. Mikryukov	Viktor.I. Mikryukov	28/45
16 Valentina N. Serova	Records Manager	11/36
17 Igor A. Karev	Financial Manager	11/29
18 Lidya G. Semendyaeva	Archivist, Person in charge of test samples storage, Person in charge of normative documents updating	9/39

2.5. Organizational Structure
See ANNEX 1 and 2.

3. RESOURCES

Total staff number of the Test Laboratory: 21 persons

The number in assessment and testing laboratory for which recognition is being sought: 16 persons. See the Annex 2 of the Statute of TL CCVE ST 01.1-03.

10 persons are involved in testing but may also be used for some other activities related to the ExCB or assessment of manufacturers.

Total number of professionally qualified staff in the area for which recognition is being sought: 16 persons (see Annex 2).

Isolation of ExCB and ExTL activities is ensured by virtue of the fact that no staff member may act in the capacity of both ExTL and ExCB for the same project.

All staff was demonstrated as having many years of experience in this field.

The laboratory is well equipped and all the tests required by the standards can be done.

4. DOCUMENTATION

4.1. Quality Manual
ExTL NANIO CCVE has a comprehensive Quality Manual, document number QM 01.1-03/Version B. This is a different Quality Manual to that used by the ExCB and contains a quality policy statement that is specific to the ExTL.

4.2. Procedures
All the operating procedures for the ExTL are in the Quality Manual with the exception of procedure - UP 7b-2004 “Flow-process diagram Certification of Ex-equipment within the IECEx Scheme” which is a separate procedure.

There is also a competency matrix that covers all staff in the ExCB and ExTL. They are given competency using the following codes:
T: Testing
V: Verification of test reports (1st step certification)
A: Auditing (Manufacturer auditing --> QAR)
C: Certification (2nd step and final certification --> issue of CoC)
AV: Verification and approval QAR

4.3. Work Instructions
There are also work instructions for the ExTL (test procedures MI) which provide the necessary guidance to ensure that testing and assessment are conducted in accordance with Standards.

The test procedures of the cover show a range of standards to cover Russian (GOST) standards, IEC standards and European (EN) standards.

For IECEx Decision sheets the experts are involved in the translation process and becoming familiar with the process.

4.4. Records

Records of certification work are kept.

4.5. Document Change Control

Quality Manual and procedure STP 01.4.01-01 Management of Quality System Documentation describes the document change control procedures. Standards are used in hard copy form and are subject to change control.

All internal quality documentation is on the intranet and there is only one copy of all documents which is controlled.

For IECEx documents only those on the IECEx website are regarded as controlled. Staff will be notified on all changes. The procedure was checked and found to meet the requirements of the IECEx System.

4.6. Test Records

All test records are made into test record sheets. The results are all included in the file for the testing.

5. TEST REPORTS

5.1. Test Reports Issued

Number of test reports issued under the IECEx, national or regional schemes in the preceding four years for each type of protection:

Standards	Title	Number of issued test reports				
		2006	2007	2008	2009	Total
60079-1	Ex d	245	254	233	134	866
60079-7	Ex e	109	94	125	71	399
60079-11	Ex i	203	219	231	114	767
60079-18	Ex m	27	45	48	39	159
60079-15	Ex n	36	44	28	27	135
60079-6	Ex o	1	0	5	0	6
60079-2	Ex p	8	6	9	18	41
60079-5	Ex q	3	3	3	6	15
61214-1-1	Dusts	37	39	40	39	155

In the above period they have also issued 1 report for IECEx and 7 for ATEX certification.

6. CALIBRATION

Regular calibration of measuring devices is conducted by the independent organization Rostest -Moscow, accredited by the Federal Agency for Technical Regulation and Metrology (former Gosstandart of the Russian Federation) for this work. There is a formal agreement with them that was viewed.

The calibrated equipment has calibration labels indicating the dates of the last and next calibration. Calibration is done to a schedule which is printed out for each year. The list is prepared by going through certificates and checking what is due. Each certificate shows the due date. Most are calibrated once a year. Some are two yearly and others 6-monthy. Generally calibration is done at the end of each year while Nanio CCVE is on vacation.

All instruments were found to be in calibration.

7. CONFIDENTIALITY

All staff are required on joining the company to sign a confidentiality agreement in their job instructions, requiring them to observe confidentiality in all aspects of their work and to preserve the proprietary rights of the company and its customers. A copy of this agreement is maintained by the personnel department. An example of a signed agreement was sighted and found to meet the requirements of the IECEx System.

8. NATIONAL ACCREDITATION

NANIO CCVE holds an Accreditation Certificates of Federal Agency on Technical Regulating and Metrology of the Russian Federation (GOST R) according to ISO/IEC 17025 with the number: РОСС RU.0001.21ГБ04 issued 21.10.2009. It is valid until 21.10.2014 (see Annex 3). The GOST R re-assessment for this latest certificate took place after the IECEx re-assessment visit. This accreditation certificate covers all standards in the existing scope, including the latest editions. It also covers all standards in the scope extension.

Nanio CCVE holds further certificates:

- Quality System certified to GOST R ISO 9001-2001 (ISO 9001: 2000). Certificate of Conformity issued by Gosstandart of Russia № РОСС.RU ИСО020.К00272.
- License of the Federal Ecological, Technological and Atomic Supervision Service in Russia № 00-ДЭ-008653 for performance of Industrial Safety Examination of devices used at hazardous production facilities.
- License of the Federal Ecological, Technological and Atomic Supervision Service in Russia № ДЭ-00 008991 (ГУ) for performance of Industrial Safety Examination of devices used at hazardous production facilities.
- Accreditation Certificate of the Russian Maritime Register of Shipping № 09.00319.011 issued on 18.03.2009.

9. RECOGNITION AND AGREEMENTS

There are bilateral cooperation agreements with NEMKO (Norway), BASEEFA (UK), SIRA (UK), PTB (Germany), BKI (Hungary), TUV NORD (Germany), DET NORSKE VERITAS (DNV) (Norway), CQST (China), NEPSI (China), PCEC (China) , INERIS (France), KOSHA (Korea), UL International (France) S.A., QPS (Canada).

10. INTERNAL AUDIT AND PERIODIC REVIEW

Internal audit is carried out annually. The program and an example of an audit report were seen.

Periodic review is achieved through the development of annual quality plans. The report for the meeting of Quality Management Review held on 14 January 2009 was reviewed.

These meetings are held at the beginning of each year. The procedure and the documents were checked and found to meet the requirements of the IECEx System.

11. COMPLAINTS AND APPEALS (Including appeals to IECEx)

All complaints are to be brought to the attention of the Head of Testing Group. If he considers the complaint to be serious, it shall be brought to the attention of the General Manager. Details of the complaint and any corrective action are to be recorded to enable their review at the annual management review, and included as an agenda item in the management meetings (Refer to Quality Manual Section 12.3)

12. SPECIAL FACTS TO BE NOTED

12.1. *Supporting Documentation*

Copies of additional supporting information for this assessment have been provided to the applicant and the IECEx Secretariat. These include:

- Details of issues raised and how these have been resolved
- Checklist for ISO/IEC 17025
- Completed technical guidance notes (TGDs) for t, p, n, d, i, m
- Photos of the facilities
- Assessor notes

12.2. Tests Witnessed

Witnessed tests included:

- Use of spark test apparatus according to IEC 60079-11 on a power supply
- Temperature rise test of a luminaire
- Dust test for IP6X
- Pressure determination test for Ex d for Group IIC
- Caplight test of illumination throughout useful life (IEC 6201013-2 Clause 8.1).

13. COMMENTS (Including issues found during assessment)

There were a number of issues found during the assessment visit that required rectification and which were subsequently resolved to the satisfaction of the assessment team. These issues included:

- Availability of low inductance capacitances for use with the intrinsic safety spark test apparatus.
- Clarity on the standards that procedures apply to and ensuring the latest standard requirements are included in standards.
- Ensuring uncertainty of measurement requirements are met for measurement of gas concentrations.
- Making sure air supplied for gas mixing as suitably dried.
- Ensuring there is proper circulation of dust for IP6X/5X testing.
- Ensuring original data is properly retained and transfers checked.

There were also some issues that were resolved, to the satisfaction of the assessment team, during the assessment, in particular removing noise from the pressure determination trace.

14. RECOMMENDATION

Based on the re-assessment performed on 7-9 July 2009, ExTL NANIO CCVE is recommended for continued acceptance in the IECEx scheme as a IECEx Testing

Laboratory (ExTL) according to the scope of the standards listed in this document including the extension of scope as shown in Clause 1.6.

This report has been reviewed by the IECEx Secretariat

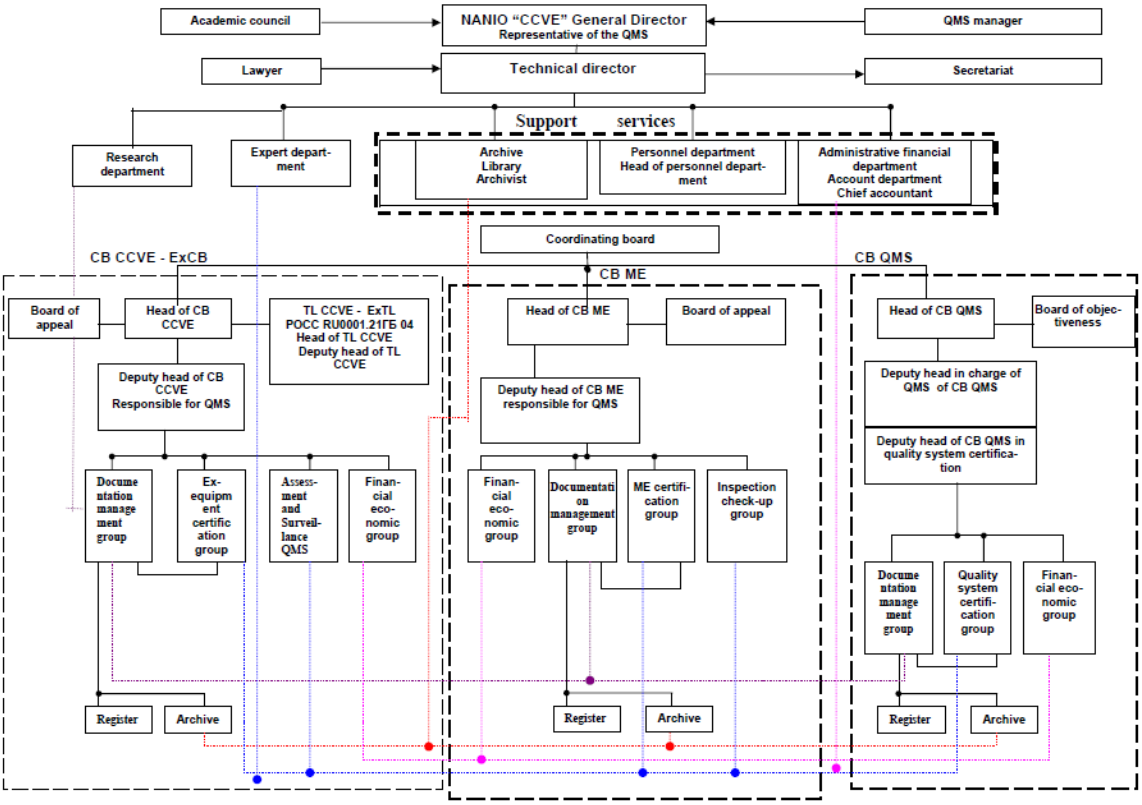
Lead Assessor	Expert Assessor
Jim Munro	Heinz Berger

Date: 7 October 2009

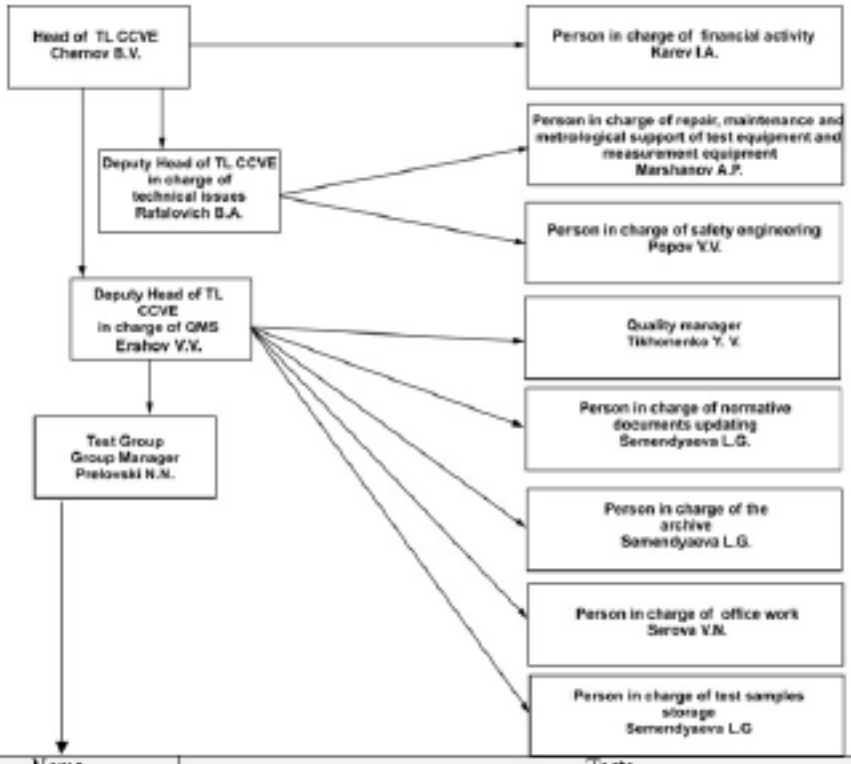
List of Annexes:

1. Overall Organization Chart of NANIO CCVE
2. Organization Chart of ExTL NANIO CCVE
3. Accreditation Certificate for the ExTL NANIO CCVE ISO/IEC 17025

ANNEX 1: Overall organization Chart of Nanio CCVE



ANNEX 2: Organization Chart of the ExTL



Name	Tests
Chernov B.V.	xdx, xpx, xqo, oox, oex, xio, oix, oxx, xxo, oxystemxx, EPL xGax, FISCO, FNICO, RT, D, xtDo, xpDo, xiDo, xmDo, caplights
Rafalovich B.A.	xdx, xpx, xqo, oox, oex, xio, oix, oxx, xxo, oxystemxx, EPL xGax, FISCO, FNICO, RT, D, xtDo, xpDo, xiDo, xmDo, caplights
Ershov V.V.	xdx, xpx, xqo, oox, oex, xio, oix, oxx, xxo, oxystemxx, EPL xGax, FISCO, FNICO, RT, D, xtDo, xpDo, xiDo, xmDo, caplights
Prelovski N.N.	xdx, xpx, xqo, oox, oex, xio, oix, oxx, xxo, oxystemxx, EPL xGax, FISCO, FNICO, RT, D, xtDo, xpDo, xiDo, xmDo, caplights
Vasilchikov M.N.	xdx, xpx, xqo, oox, oex, xxx, xxx, oxx, EPL xGax, RT, D, xtDo, xpDo, xmDo, caplights
Serov S.V.	xdx, xpx, xqo, oox, oex, xxx, xxx, oxx, EPL xGax, RT, D, xtDo, xpDo, xmDo, caplights
Zhukovin Yu.D.	xpx, xex, oix, xxx, xxx, oxx, oxystemxx, EPL xGax, FISCO, FNICO, D, xpDo, xiDo
Solntsev V.B.	xpx, xex, oix, xxx, xxx, oxx, oxystemxx, EPL xGax, FISCO, FNICO, D, xtDo, xpDo, xiDo, xmDo
Marshanov A.P.	xdx, xpx, xex, xix, xxx, xxx, oxx, oxystemxx, EPL xGax, FISCO, FNICO, RT, D, xtDo, xpDo, xiDo, xmDo
Timofeev I.S.	xex, oxx, oxx, xxo, D, xtDo, xmDo
Vinogradov V.P.	xpx, xex, oxx, xxx, xxo, oxystemxx, EPL xGax, FISCO, FNICO, RT, D, xpDo, xiDo, xmDo
Malkovich O.B.	xpx, ex, oix, xdx, xxx, xxx, xxx, oxystemxx, EPL xGax, FISCO, FNICO, D, xpDo, xiDo
Kouzov Yu. V.	xdx, xpx, xqo, oox, oex, xio, oix, oxx, xxo, EPL xGax, D, xtDo, xpDo, xmDo
Kiselev A.E.	xex, oxx, xmDo
Popov V.V.	xex, oxx, oxx, RT, D, xtDo, xmDo
Milavyukov V.I.	xpx, xex, xex, xxx, oxx, D, xmDo

Annex 3: Accreditation Certificate according to ISO/IEC 17025

ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ТЕХНИЧЕСКОМУ РЕГУЛИРОВАНИЮ И МЕТРОЛОГИИ

№ 003720

АТТЕСТАТ АККРЕДИТАЦИИ ИСПЫТАТЕЛЬНОЙ ЛАБОРАТОРИИ (ЦЕНТРА)

№ РОСС RU.0001.21ГБ04

Действителен до «21» октября 2014 г.

НАСТОЯЩИЙ АТТЕСТАТ ВЫДАН НЕКОММЕРЧЕСКОЙ АВТОНОМНОЙ НАУЧНО-ИССЛЕДОВАТЕЛЬСКОЙ
наименование юридического лица с указанием организационно-правовой формы

ОРГАНИЗАЦИИ «ЦЕНТР ПО СЕРТИФИКАЦИИ ВЗРЫВОЗАЩИЩЕННОГО И РУДНИЧНОГО ЭЛЕКТРООБОРУДОВАНИЯ»

115230, г. Москва, Электролитный проезд, д. 5, комната № 403
адрес юридического лица

И УДОСТОВЕРЯЕТ, ЧТО ИСПЫТАТЕЛЬНАЯ ЛАБОРАТОРИЯ
наименование ИЛ (ЦИ)

140004, Московская обл., г. Люберцы, пос. ВУГИ, ОАО «Завод «ЭКОМАШ»
адрес ИЛ (ЦИ)

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ ГОСТ Р ИСО/МЭК 17025 - 2006 (МЕЖДУНАРОДНОГО СТАНДАРТА ИСО/МЭК 17025(2005),

АККРЕДИТОВАН(А) НА ТЕХНИЧЕСКУЮ КОМПЕТЕНТНОСТЬ И НЕЗАВИСИМОСТЬ
(техническую компетентность или техническую компетентность и независимость)

ДЛЯ ПРОВЕДЕНИЯ РАБОТ ПО ИСПЫТАНИЯМ СООТВЕТСТВИИ С ОБЛАСТЬЮ АККРЕДИТАЦИИ,
ОБЛАСТЬ АККРЕДИТАЦИИ ОПРЕДЕЛЕНА ПРИЛОЖЕНИЕМ К НАСТОЯЩЕМУ АТТЕСТАТУ И ЯВЛЯЕТСЯ ЕГО НЕОТЪЕМЛЕМОЙ ЧАСТЬЮ.

Руководитель (заместитель Руководителя) подпись Е.Р. Петросян инициалы, фамилия

Зарегистрирован в Едином реестре
«21» октября 2009 г.

М.П.