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

Title: IECEx Assessment Report for the acceptance of *Electrosuisse* as an IECEx Test Laboratory (ExTL) within the IECEx System.

Circulation to: Members of the IECEx Management Committee, ExMC

INTRODUCTION

This document contains the IECEx Assessment Report for the acceptance of *Electrosuisse* as an Accepted IECEx Test Laboratory (ExTL) within the IECEx System.

This report is hereby submitted for voting.

Please consider this assessment report and return the completed voting form (A separate document - in Word Format) to the IECEx Secretariat by 26th March 2010.

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

Chris Agius

Chris Agius

IECEx Secretariat

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IECEx ASSESSMENT REPORT FOR Electrosuisse (IECEx TEST LABORATORY ExTL))

Type of Assessment: (please mark)

Initial Assessment for Candidate ExTL X

1. OBJECT AND FIELD OF APPLICATION

1.1. ***Country:***
Switzerland

1.2. ***Name of Candidate TL***
Electrosuisse

1.3. ***Members of the Assessment Team***
Xu Jianping – Director of NEPSI - IECEx Lead Assessor and Team Leader
Herbert Peters – TUV Nord - Expert Assessor
Alain Czyz – Expert Assessor

1.4. ***Place and Date of Assessment***
Luppmenstrasse 1
CH-8320 Fehraltorf
Switzerland

Tel: +41 44 956 13 25
Fax: +41 44 956 18 25
Website: www.electrosuisse.ch

24-26 March 2009

1.5. ***Assessment References***

i) IECEx 02 Third Edition 2006-11 IECEx Equipment Certification Program Rules of Procedure
ii) IECEx OD003 V1 IECEx Assessment procedures
iii) IECEx OD009 V1 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 26 September 2008

1.6. Scope of Application

Number	Title
60079-0	Electrical apparatus for explosive gas atmospheres Part 0: General requirements
60079-1	Electrical apparatus for explosive gas atmospheres Part 1: Construction and verification test of flameproof enclosures of electrical apparatus
60079-2	Electrical apparatus for explosive gas atmospheres Part 2: Electrical apparatus, type of protection 'p' (Pressurization)
60079-7	Explosive atmospheres Part 7: Equipment protection by increased safety “e”
60079-11	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety 'i'
60079-15	Electrical apparatus for explosive gas atmospheres Part 15: Electrical apparatus with type of protection 'n' (Non-Sparking)
60079-18	Electrical apparatus for explosive gas atmospheres Part 18: Encapsulation 'm'
60079-26	Explosive atmospheres Part 26: Equipment with equipment protection level (EPL) Ga
61241-0	Electrical apparatus for use in presence of combustible dust Part 0: General requirements
61241-1	Electrical apparatus for use in presence of combustible dust Part 1: Electrical apparatus protected by enclosures
61241-1-1	Electrical apparatus for use in presence of combustible dust Part 1: electrical apparatus protected by enclosures Section 1: Specification for apparatus
61241-4	Electrical apparatus for use in presence of combustible dust Part 4: Type of protection ‘pD’
61241-11	Electrical apparatus for use in presence of combustible dust Part 11: Protection by intrinsic safety ‘iD’
61241-18	Electrical apparatus for use in presence of combustible dust Part 18: Protection by encapsulation ‘mD’

1.7. *Candidate TL Persons Interviewed*

Name	Position
Fritz Beglinger	Head of Industry and Commence, Manager Product Qualification and Certification
Bernardo Rieder	Deputy Head of Industry and Commence, Deputy Product Qualification and Certification, Quality Manager

Name	Position
Hermann Gull	Team Ex Leader
Matthias Huber	Test Engineer of Team Ex
Albert Suter	Test Engineer of Team Ex
Peter Bosshard	Test Engineer of Team Ex

Notes:

1) Mr. Peter Bosshard retired at the end of August, 2009, and is no longer in testing activities. He works with the certification team as a report reviewer and technical trainer upon request on a time based contract.
2) Mr Angelo Sabatino, an experienced ISO 9001 auditor who has well knowledge in the Ex field, started working with Team Ex on 1st November 2009.

1.8. Legal Entity Of The Candidate TL

Electrosuisse is 100% owned by the Swiss Electrotechnical Association（SEV）for Electrical Engineering, Power and Information Technologies.

The SEV Association was founded in 1889 in the form of a registered society in accordance with Article 60 et seq. of the Swiss Civil Code, and started their testing activities in 1901. Around 4300 professionals and 1750 companies and institutions are members of the association. After being located in Zurich, SEV moved in 1994 to Fehraltorf (20km east of Zurich), where the laboratories and all testing equipment was completely renewed. SEV changed its name to Electrosuisse in 2002.

As an accredited certification body by Swiss Accreditation Service (SAS), Electrosuisse is the recognized professional organization for electrical-, energy- and information technology, offering services for the whole of the electrical sector. Electrosuisse is a member of IECEE-CB scheme since 1961 and member of the European CENELEC Certification Agreement (CCA Scheme) since 1973 and ATEX Notified Body since 2004.

1.9. *Associated ExCB*

The ExCB is integral with the ExTL at the same site.

1.10. *Financial Support*

Electrosuisse does not receive any financial support. Their operation is financed from its testing, certification, surveillance and license fees.

1.11. History

See Clause 1.8 above.

1.12. *Standards Accepted*

Number	Title
60079-0	Electrical apparatus for explosive gas atmospheres Part 0: General requirements
60079-2	Electrical apparatus for explosive gas atmospheres Part 2: Electrical apparatus, type of protection 'p' (Pressurization)
60079-7	Explosive atmospheres

Number	Title
	Part 7: Equipment protection by increased safety “e”
60079-11	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety 'i'
60079-15	Electrical apparatus for explosive gas atmospheres Part 15: Electrical apparatus with type of protection 'n' (Non-Sparking)
60079-18	Electrical apparatus for explosive gas atmospheres Part 18: Encapsulation 'm'
60079-26	Explosive atmospheres Part 26: Equipment with equipment protection level (EPL) Ga
61241-0	Electrical apparatus for use in presence of combustible dust Part 0: General requirements
61241-1	Electrical apparatus for use in presence of combustible dust Part 1: Electrical apparatus protected by enclosures
61241-1-1	Electrical apparatus for use in presence of combustible dust Part 1: electrical apparatus protected by enclosures Section 1: Specification for apparatus
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61241-11	Electrical apparatus for use in presence of combustible dust Part 11: Protection by intrinsic safety ‘iD’
61241-18	Electrical apparatus for use in presence of combustible dust Part 18: Protection by encapsulation ‘mD’

Note:
Comparing the original application scope as listed in clause 1.6 of this report, because of lack of sufficient experience and knowledge the following items are excluded:

a) IEC60079-1;
b) Ex e motor with voltage high than 1000V and Ex e luminaries from IEC60079-7;
c) Ex nC and Ex n motor are excluded from IEC 60079-15.

2. ORGANISATION

2.1. Names, Titles and Experience of the Senior Executives

Name	Title	Experience
Fritz Beglinger	Head of Industry and Commerce, Manager Product Qualification and Certification	12 years at Electrosuisse, 6 years in current position
Bernardo Rieder	Deputy Head of Industry and Commerce, Deputy Manager Product Qualification and Certification, Quality Manager	8 years at Electrosuisse, 6 years in the field of Quality Management

Name	Title	Experience
Jürg Rellstab	Head of Product Certification	4 years in certification, 4 years at Electrosuisse

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

Name	Title	Experience
Bernardo Rieder	Deputy Head of Industry and Commerce, Deputy Manager Product Qualification and Certification, Quality Manager	8 years at Electrosuisse, 6 years in the field of Quality Management

2.3. Name and Title of Nominated Principal Contact

Name	Title	Comments
Friz Beglinger	Head of Industry and Commerce	Friz.beglinger@electrosuisse.ch Tel: +41 44 956 13 25 Fax: +41 44 956 18 25

2.4. Employees

Name	Title	Experience
Matthias Huber	Test Engineer of Team Ex	2 years in Ex, 10 years at Electrosuisse
Albert Suter	Test Engineer of Team Ex	15 years in Ex, 25 years at Electrosuisse
Hermann Gull	Test Engineer of Team Ex	33 years in Ex, 33 years at Electrosuisse
Peter Bosshard	Test Engineer of Team Ex (See notes in Clause 1.7 of this report)	12 years in Ex, 14 years at Electrosuisse

2.5. Organizational Structure

See Annex 1 and Annex 2. Annex 1 is the overall organization chart of Electrosuisse, and Annex 2 indicating the function of ExCB and ExTL at Electrosuisse.

3. RESOURCES

Electrosuisse employs 210 people at its head offices in Fehraltorf and at its location in Lausanne. Their Ex activities with necessary resources at Fehraltorf include 42 staff in total, with 29 for testing activities. There are a total of 4 personnel in the ExCB and 4 in the ExTL. Electrosuisse currently has three qualified IECEx auditors by using staff from ExTL. The specific certification activities are supported by a comprehensive range of manuals and procedures, as well as the assistance from the team of Customer Service.

4. DOCUMENTATION

4.1. Quality Manual

The quality system is described in the Electrosuisse quality manual and is based on ISO/IEC 9000:2000 and ISO 14000 as well as ISO/IEC Guide 65/EN 45011 and ISO/IEC 17025/17020. It contains all necessary policies and procedures relevant to the testing and certification processes.

The Electrosuisse Quality Manual is divided into:

- Electrosuisse General Management Handbook (MHB 01.01)
- Electrosuisse Process Handbooks
  (VHB-PQ 01.01 for testing, VHB-ZP 01.01 for certification)

The quality manuals are written by the quality manager in close co-operation with the relevant business sections. Their control and release are performed by the CEO. The distribution of the documents and the implementation into Intranet is under the responsibility of the quality manager. The quality manual is stored on the Intranet no paper copies exist. This version is always the latest and consequently the valid one. All staff has access to the relevant parts which apply to their field.

4.2. Test Methods/Procedures

A series of testing procedures is included in the management system, giving detailed information mainly for carrying out IECEE related electrical testing activities according to ISO/IEC 17025. Currently there are a few test methods/procedures/working instructions particularly developed for Ex testing, but the witness of spark ignition test indicated that a working instruction on how to fix flow rates of test gases is necessary for correct operation. This has been subsequently developed and put in place and meets the requirements of the IECEx System.

4.3. Test Records

The control of quality records is laid down in the main quality manual MHB51.01. The detailed procedure is sighted and examples of quality records are well maintained with a minimum period of 10 years. It was advised that sufficient records are important and necessary for the traceability of product certification.

4.4. Document Change Control

All documents developed by the quality manager and relevant key persons are always reviewed and approved prior to publication via Intranet. The details of document control including data are also covered by the procedure MHB51.01.

5. TEST REPORTS

5.1. Test Reports Issued

Number of test reports issued in the preceding three years for each type of protection covered by the standards listed in b)

Number of EN and IEC test reports issued			
Standards	Year		
	2006	2007	2008
IEC 60079-1* EN 50018*	0 3	1 4	2 3

Number of EN and IEC test reports issued			
Standards	Year		
	2006	2007	2008
IEC 60079-7 EN 50019	0 5	2 4	3 6
IEC 60079-11 EN 50020 IEC 60079-26 EN 50284 IEC 61241-11	0 8	2 8	5 8
IEC 60079-18 EN50028 IEC 61241-18	0 5 0	0 0 0	2 5 0
IEC 60079-15 EN50021	0 8	1 9	3 8
IEC 60079-2 EN50016 IEC 61241-4	0 1 0	0 1 0	0 1 0
IEC 61241-1 EN50281-1-1	0 12	1 4	4 11

*NOTE: While the above table shows Test Reports issued concerning IEC 60079-1 and EN 50018 (Ex d) the reports issued include Ex ‘d’ testing performed by other facilities. Ex ‘d’ was, however, excluded from the application scope of both the ExCB and the ExTL, by agreement between the management of Electrosuisse and the IECEx Assessment Team.

6. CALIBRATION

The calibration processes is well documented with identifications of MHB37.01 and VHB-EB01.01. The testing equipment and measuring instruments at Electrosuisse are mainly outsourced to be calibrated. Some are internally calibrated. Examples of calibration certificates are reviewed and satisfactory.

Further detailed information, including calibration cycle was available via “Easy tems” on the extranet, but the assessment team noted that a few measuring instruments were not registered properly, and the calibration cycle of oxygen analyzer was not clearly defined. These issues were subsequently resolved to the satisfaction of assessment team.

7. CONFIDENTIALITY

Confidentiality is applied within Electrosuisse. It is addressed in the procedure MHB 11.02 of main quality manual (MHB 01.01). All the employees including all the members of certification committee (ZAC) are required to sign a contract/agreement with statement on confidentiality and conflict of interest. Examples of such signed agreements are viewed during the assessment. In addition control and security of access to the premises and the data on the servers is also maintained.

8. NATIONAL ACCREDITATION

Electrosuisse holds accreditation from the Swiss Association Service (SAS) as a testing laboratory according to ISO/IEC 17025:2005. See Annex 3.

The assessment team also noted that the accreditation certificate, shown as STS 001 with validity to 23 September 2011, covers all the Ex concepts of devices and protective systems for use in potentially explosive atmospheres under ATEX Directive.

9. RECOGNITION AND AGREEMENTS

Electrosuisse has agreements and recognitions including:

- Notified Body under ATEX Directive
- IECEE CB Scheme
- CENELEC Certification Agreement (CCA) Scheme
- ENEC Scheme
- HAR Scheme

10. INTERNAL AUDIT AND PERIODIC REVIEW

Internal audits are carried out in accordance with the management procedures MBH22.02. This covers a series of audits through the last year with coverage of all the quality elements and departments/activities. The latest internal audit for testing laboratory was conducted on 19 March 2009. The periodic management reviews was conducted annually. The latest management reviews covering both the certification body and the testing laboratory were fulfilled on 17 March 2009. These processes with its records were checked and found to be satisfactory.

11. COMPLAINTS AND APPEALS (Including appeals to IECEx)

Appeals, complaints and disputes are brought to the certification body's management and are subjected to the procedures outlined in the document "Basic previsions CERTIFEL certification system". When no solution is achieved by the management, Customer complaints and appeals also can be forwarded to the certification committee (ZAC) where a final decision will be made. The quality manager of Electrosuisse has the responsibility to monitor the complete process.

The assessment team also noted that the procedure on appeals did not at the time of the assessment cover appeals to the IECEx System or how this is conveyed to customers. The procedure has subsequently been revised to address this to the satisfaction of the assessment team.

12. SPECIAL FACTS TO BE NOTED

12.1. *Supporting Documentation*

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

- A site assessment report that includes details of issues raised and how these have been resolved
- Checklist for ISO/IEC 17025:2005
- Completed technical guidance documents (TGDs)
- Photos of the facilities and tests witnessed

12.2. Tests Witnessed

The following tests were witnessed during the initial assessment visit:

- Spark ignition test on a power supply
- Temperature rise test on an IS equipment
- Tests for temperature rise/determination of the maximum short circuit current on a non-rechargeable battery according to 10.5.3 of IEC 60079-11 Edition 5.0
- IP64 test to IEC60529

- Impact test
- CTI test (partial)

The assessment team concluded that all of the tests witnessed were conducted in accordance with requirements of the standards and by appropriately trained and competent testing staff with required instrumentation and facilities.

12.3. Production of Reports

At the assessment time Electrosuisse issued few test reports only for ATEX testing and certification purpose.

13. COMMENTS (Including issues found during assessment)

There were a few issues found during the initial assessment. All the issues were resolved to the satisfaction of the assessment team. Full details will held by the IECEx System Secretariat, together with relevant supporting documents from this initial assessment.

14. RECOMMENDATION

Based on the initial assessment performed on 24-26 March 2009, Electrosuisse is recommended for acceptance in the IECEx system as an IECEx Testing Laboratory (ExTL) according to the scope of the standards listed in clause 1.12 of this document, and subject to the following additional condition and limitation:

1) the following items are excluded from scope accepted:
   a) Ex e motor with voltage high than 1000V and Ex e luminaries from IEC60079-7;
   b) Ex nC and Ex n motor are excluded from IEC 60079-15.

2) Due to the lack of experience in drafting of IEC ExTRs, it is recommended that after acceptance of Electrosuisse as an ExTL of IECEx System the first ExTR issued be reviewed.

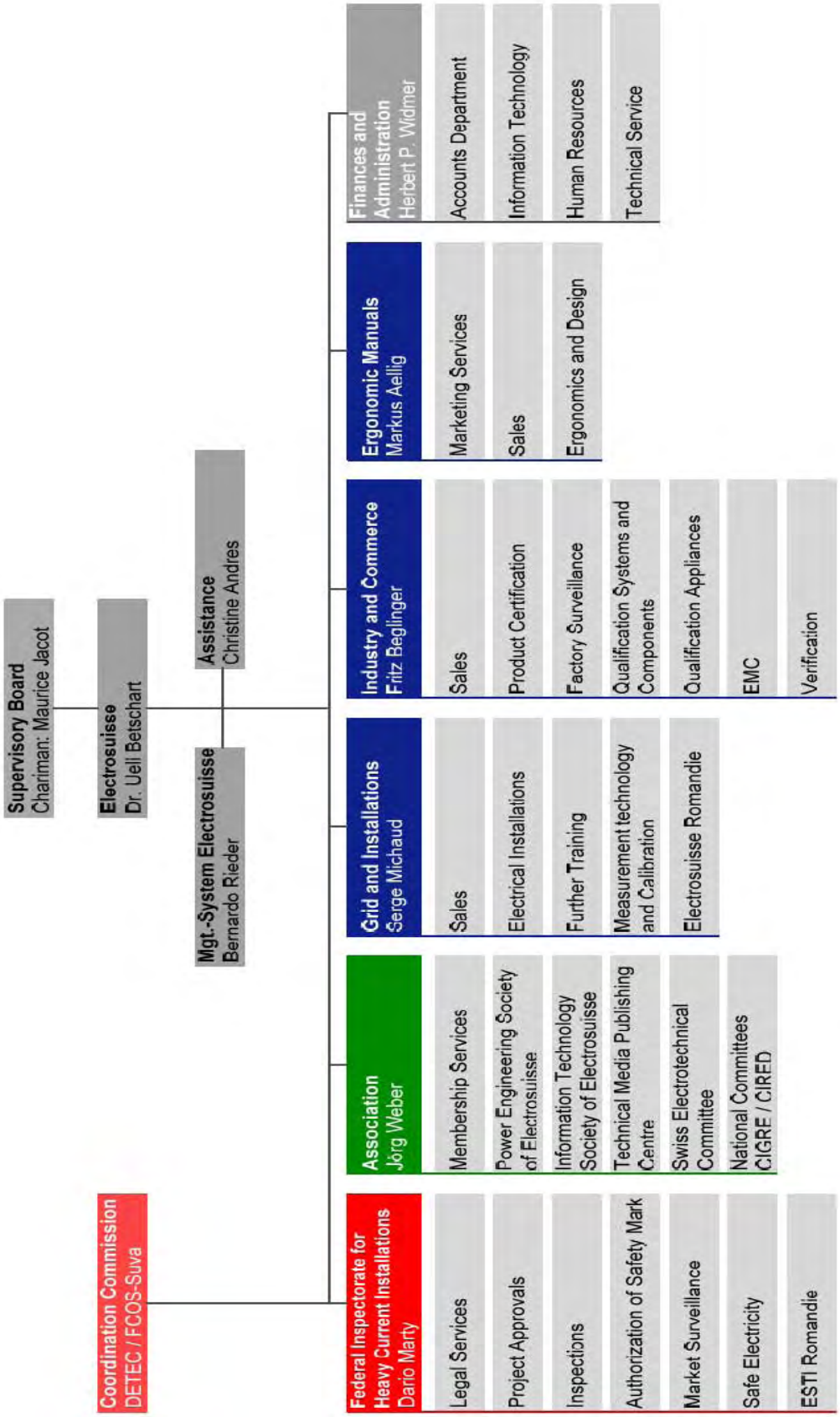
Xu Jianping Team Leader Leader Assessor	Herbert Peters Expert Assessor	Alain Czyz Expert Assessor

Date: 22 November 2009

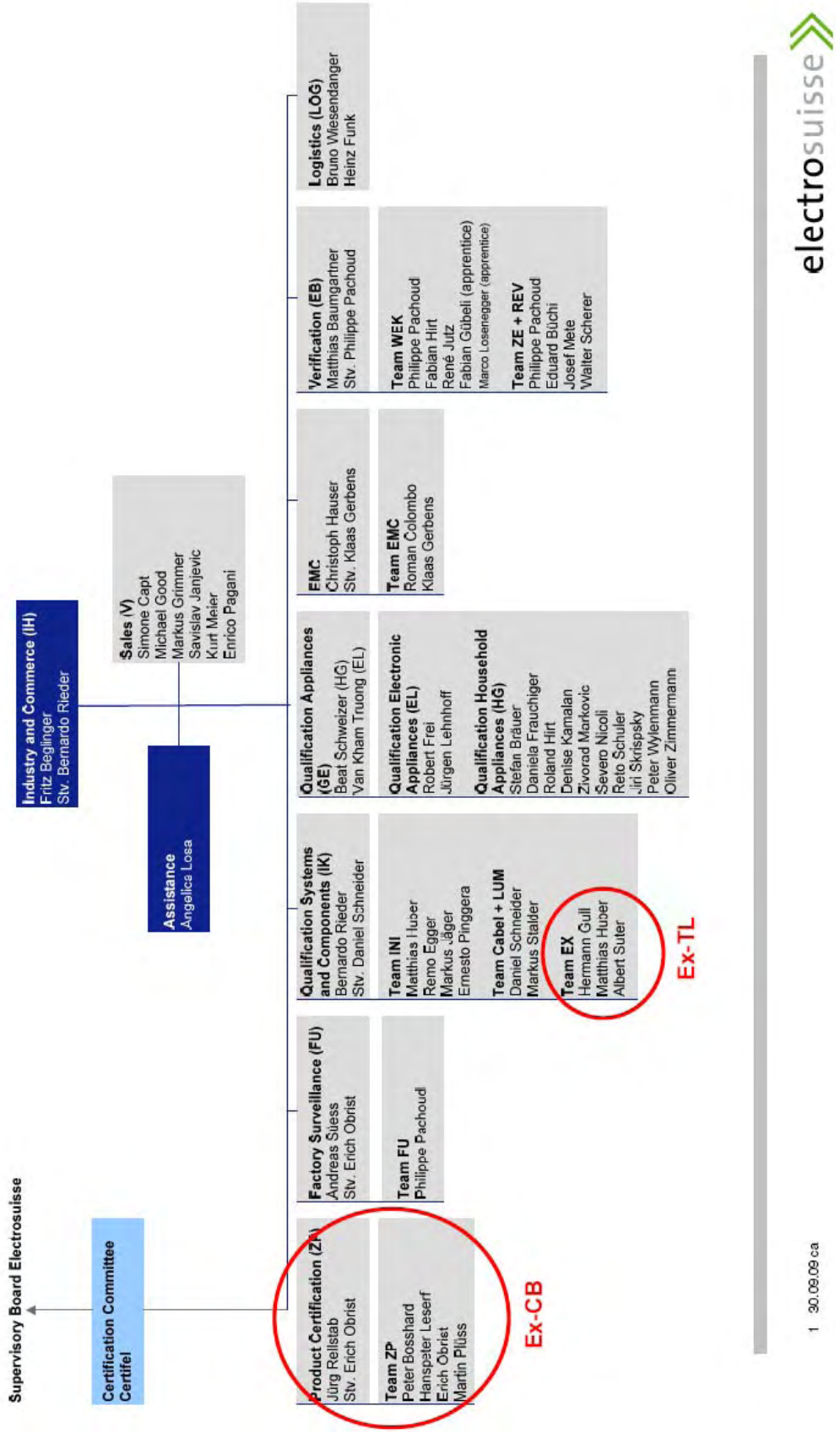
List of Annexes:

1. Overall Organization Chart of Electrosuisse
2. Organization Chart of Electrosuisse Ex Operation
3. Accreditation Certificate from Swiss Accreditation Service (SAS)

Annex 1
Overall Organization Chart of Electrosuisse



Annex 2
Organization Chart of Electrosuisse Ex Operation



Annex 3
Accreditation from Swiss Accreditation Service (SAS)

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Economic Affairs DEA
Swiss Accreditation Service SAS

Based on the Accreditation and Designation Ordinance dated 17 June 1996 (as of 4 April 2006) and on the advice of the Federal Accreditation Commission, the Swiss Accreditation Service (SAS) grants to

Electrosuisse
Testing laboratory
Luppmenstrasse 1
CH-8320 Fehraltorf

the accreditation as

Testing laboratory for technical safety testing, electromagnetic compatibility and environmental tests of electrical equipment

in accordance with the Standard ISO/IEC 17025. The scope of accreditation is defined in the Official Directory of the Accredited Testing Laboratories.

Accreditation mark and number: STS 001
Date of accreditation: 11 August 1994
Date of the last renewal of accreditation: 24 September 2006
The accreditation is valid until: 23 September 2011

CH-3003 Berne-Wabern, 15 September 2006
Swiss Accreditation Service

The Head
Hanspeter Ischi

SAS is a signatory of the multilateral agreements of the European co-operation for Accreditation (EA) for calibration, testing, inspection and certification of products, personnel, quality and environmental management systems, of the International Accreditation Forum (IAF) for certification of products, quality and environmental management systems and of the International Laboratory Accreditation Cooperation (ILAC) for calibration and testing.