

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

Ex Management Committee, ExMC

**TITLE: IECEx Assessment Report for acceptance of as an IECEx Test
Laboratory (ExTL)**

INTRODUCTION

This document contains the IECEx Assessment Report for the acceptance of *TÜV Rheinland Industrie Service GmbH* - as an IECEx Test Laboratory (ExTL) within the IECEx Scheme.

Please consider this report, which is hereby issued for approval during the ExMC meeting to be held in Shanghai in September 2006.

Any comment relating to this report should be forwarded to the Secretariat prior to the meeting

Chris Agius
IECEx Secretariat

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IECEX Assessment Report for TÜV Rheinland Industrie Service GmbH, Cologne, Germany

IECEX TEST LABORATORY – ExTL

Type of Assessment:

Initial assessment for Candidate ExTL

X

1. OBJECT AND FIELD OF APPLICATION

1.1 *Country:*

Germany

1.2 *Name of Candidate TL*

TÜV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

1.3 *Members of the Assessment Team*

Heinz S. Berger, Team Leader
Vijay Kumar Varma, Expert Assessor
William Dunn, Expert Assessor

1.4 *Place and Date of Assessment*

51105 Cologne, Am Grauen Stein

16th – 18th May, 2006

1.5 *Assessment References*

Documents:

- i) IECEx 02 Second Edition 06 2003
- ii) IECEx Operational Document OD/003
- iii) IECEx Operational Document OD/009
- iv) ISO/IEC 17025:2005
- v) IECEx Technical Guidance Documents (TGDs)
- vi) ExTAG decision sheets (DS's)
- vii) ExTL application documents dated February 23, 2006

1.6 Scope of Application

Number	Title	Clearance
<u>60079-0</u>	Electrical apparatus for explosive gas atmospheres Part 0: General requirements	OK
<u>60079-1</u>	Electrical apparatus for explosive gas atmospheres Part 1: Construction and verification test of flameproof enclosures of electrical apparatus "d"	OK with Comment
<u>60079-2</u>	Electrical apparatus for explosive gas atmospheres Part 2: Electrical apparatus, type of protection 'p' (Pressurization)	OK
<u>60079-5</u>	Electrical apparatus for explosive gas atmospheres Part 5: Powder filling "q"	OK with Comment
<u>60079-6</u>	Electrical apparatus for explosive gas atmospheres Part 6: Oil-immersion 'o'	OK with Comment
<u>60079-7</u>	Electrical apparatus for explosive gas atmospheres Part 7: Increased safety 'e'	OK
<u>60079-11</u>	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety 'i'	OK
<u>60079-15</u>	Electrical apparatus for explosive gas atmospheres Part 15: Electrical apparatus with type of protection 'n' (Non-Sparking)	OK
<u>60079-18</u>	Electrical apparatus for explosive gas atmospheres Part 18: Encapsulation 'm'	OK
<u>60079-25</u>	Electrical apparatus for explosive gas atmospheres Part 25: Intrinsically safe systems	OK
<u>60079-26</u>	Electrical apparatus for explosive gas atmospheres Part 26: Construction, test and marking of Group II Zone 0 electrical apparatus	OK
<u>60079-27</u>	Electrical apparatus for explosive gas atmospheres Part 27: Field bus intrinsically safe concept (FISCO)	OK
<u>60079-28</u>	Electrical apparatus for explosive gas atmospheres Part 28: Protection of equipment and transmission systems using optical radiation	OK
<u>61241-0</u>	Electrical apparatus for use in the presence of combustible dust Part 0: General requirements	OK
<u>61241-1</u>	Electrical apparatus for use in the presence of combustible dust Part 1: Electrical apparatus protected by enclosures	OK
<u>61241-4</u> (61241-2)	Electrical apparatus for use in the presence of combustible dust Part 4: Type of protection 'pD'	OK
<u>61241-11</u>	Electrical apparatus for use in the presence of combustible dust Part 11: Intrinsically safe apparatus "iD"	OK
<u>61241-18</u>	Electrical apparatus for use in the presence of combustible dust Part 18: Protection by encapsulation 'mD'	OK

1.7 Candidate TL Persons Interviewed

Heinz Farke	Dipl. Ing., Head of ExTL
Heinz Gall	Dipl. Ing., Deputy Head of ExTL
Burkhard Daske	Dipl. Ing. Quality Manager
Klaus Wettingfeld	Dipl. Ing., Head of Product Certification

1.8 Legal Entity Of The Candidate TL

TÜV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

1.9 Associated ExCB

TÜV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

1.12 Financial Support

The ExTL is an integral part of TÜV Rheinland Industrie Service GmbH and a 100% private owned company. It is self founded relaying to revenues based on testing activities.

1.13 History

1872 Industrialists set up DÜV on their own initiative
to safeguard their production facilities
1904 Automobile inspections and driving tests
1926 First laboratory for testing materials
1969 Product testing and certifications
1970 First subsidiary outside Germany
1970 TÜV Academy trains qualified personnel
1991 System certifications to international standards
2000 Security and quality in local and global data
and communication networks
2003 Fusion with TÜV Pfalz e. V. to TÜV Rheinland
Berlin Brandenburg Pfalz e. V.
Ultimately becoming the TÜV Rheinland Group

2. ORGANISATION

2.1 Names, Titles and Experience of the Senior Executives

Name	Title	Experience
Werner Meyer	Dipl. Ing. Head of Business Field Electrical Engineering and Building Technology	
Heinz Farke	Dipl. Ing. Head of Testing Laboratory	9 years
Heinz Gall	Dipl. Ing. Deputy Head of ExTL (for administrative matters only)	15 years

2.2 Name, Title and Experience of the Quality Management Representative

Name	Title	Experience
Burkhard Daske	Dipl. Ing.	14 years

2.3 Name and Title of Nominated Principal Contact

Name	Title	Contact
Heinz Farke	Dipl. Ing. Head of ExTL	heinz.farke@de.tuv.com

2.4 Employees

Name	Title	Experience
Brandwijk Jan	Dipl. Ing.	13 years
Brewig Ekkard	Dr. Ing.	30 years
Farke Heinz	Dipl. Ing.	9 years
Rödl Volker	Dipl. Ing.	10 years
Risse Friedhelm	Guild Certificate	19 years
Brandau Norbert	Dipl. Ing.	29 years
Schwarz Stefanie	Guild Certificate	½ year
Leidel Dietmar	Dipl. Ing.	15 years
Vassen Franz	Dipl. Ing.	18 years
Drygala Gerd	Guild Certificate	30 years
Dawid Peter J. C.	Dipl. Ing.	9 years
Willems Hans-Walter	Dipl. Ing.	6 years
Ansorge Roland	Engineer	34 years

2.5 Organizational Structure

See organization charts of the TÜV Rheinland Group (Annex 1) and the Business Unit Ex of Industrie Service GmbH (Annex 2). See also list of employees in clause 2.4 of this report.

3. RESOURCES

In the testing laboratory thirteen persons are active in the field of Ex testing. The necessary test equipment is available at their laboratory or in the OTLs.

4. TEST METHODS

Test methods are very well developed, maintained and used at test places.

5. TEST REPORTS AND RECORDS

5.1 Test Reports Issued

Number of test reports issued under the ATEX directive in the preceding four years for each type of protection:

Standards	Title	Number of issued test reports				Σ
		2002/ 2003	2004	2005	2006	
60079-0 / EN 50014	Electrical apparatus for explosive gas atmospheres Part 0: General requirements	10	9	17	5	41
60079-1 / EN 50018	Electrical apparatus for explosive gas atmospheres Part 1: Flameproof enclosures 'd'	5	4	5		14
60079-2 / EN 50016	Electrical apparatus for explosive gas atmospheres Part 2: Pressurized enclosures 'p'	7	1	8		16
60079-5	Electrical apparatus for explosive gas atmospheres Part 5: Powder filling "q"	-	-	-	-	-
60079-6 / EN 50015	Electrical apparatus for explosive gas atmospheres Part 6: Oil-immersion 'o'		1			1
60079-7 / EN 50019	Electrical apparatus for explosive gas atmospheres Part 7: Increased safety 'e'	1	6	4	3	14
60079-11 / EN 50020	Electrical apparatus for explosive gas atmospheres Part 11: Intrinsic safety 'i'	7	7	10	2	26
60079-15/ EN 50021	Electrical apparatus for explosive gas atmospheres Part 15: Type of protection 'n' (Non-Sparking)	5	3	5	1	14
60079-18/ EN 50028	Electrical apparatus for explosive gas atmospheres Part 18: Encapsulation 'm'	3	1	2		6
60079-25	Electrical apparatus for explosive gas atmospheres Part 25: Intrinsically safe systems	-	-	-	-	-
60079-26/ EN 50284	Electrical apparatus for explosive gas atmospheres Part 26: Construction, test and marking of Group II Category 1 G electrical apparatus		2	2		4
60079-27	Electrical apparatus for explosive gas atmospheres Part 27: Field bus intrinsically safe concept (FISCO) and Field bus non-incentive concept (FNICO)	-	-	-	-	-
60079-28	Electrical apparatus for explosive gas atmospheres Part 28: Protection of equipment and transmission systems using optical radiation			2		2
61241-0	Electrical apparatus for use in the presence of combustible dust Part 0: General requirements		1	5	3	9
61241-1/ EN 61241-1/EN50281-1-1	Electrical apparatus for use in the presence of combustible dust Part 1: Protection by enclosures "tD"	2	2	1	2	7
61241-4	Electrical apparatus for use in the presence of combustible dust Part 4: type of protection 'pD'	-	-	-	-	-
61241-11	Electrical apparatus for use in the presence of combustible dust Part 11: Intrinsically safe apparatus "iD"			3	1	4
61241-18	Electrical apparatus for use in the presence of combustible dust Part 18: Protection by encapsulation "mD"	-	-	-	-	-

5.2 Test Records

Test records were reviewed in detail and found to be acceptable. The procedure is described in document QMA 3.103.02 Rev. 4, clause 6.3.

6. CALIBRATION

The calibration concept is described in QMV 2.009 and QMA 2.009.1 Rev. 2, Annex 2, clause 4 and in relevant work instructions. The test equipment list can be seen on a database available to all employees active in the Ex area. The list contains all relevant data such as description of test equipment, manufacturer of test equipment, serial number, and status, date of last calibration and date of next calibration. The test equipment used for the tests performed during the assessment was checked for proper calibration and tagging.

7. DOCUMENTATION

7.1 *Quality Manual*

The first level QM is for TÜV Rheinland Group consisting of six parts. The second level QM is for the Business Unit Industrie Service GmbH. This QM covers eight business fields. Business Unit 1.3 covers the certification activities in the Ex field.

7.2 *Document Change Control*

The document and change control is described in TÜV Rheinland Group QM part 2, clause 3.2.1. and fully complies with the principles of document management control

8. CONFIDENTIALITY

The confidentiality issue is described in the QMIS (TÜV Rheinland Industrie Service GmbH Management Handbook), chapter 1, clause 1.10 and in QM declaration OM 32. This is in addition to the employment contract carrying the confidentiality clause.

9. NATIONAL ACCREDITATION

TÜV Rheinland Industrie Service GmbH holds an accreditation by ZLS to EN45001 (ISO/IEC 17025) for the Testing Laboratory and to the ATEX directive 94/9/EC. The certificate was presented during the assessment. See Annex 3 for the certificate. The certificate is valid until December 31st, 2006. The reaccreditations are planned for 2006.

10. RECOGNITION AND AGREEMENTS

There is presently no such agreement.

11. INTERNAL AUDIT AND PERIODIC REVIEW

Internal audits and the management review are described in clause 6.2 of the QMM IS Chapter 6 (QMM IS = Quality Management Manual for Industrie Service).

The internal audit plan for 2005 and 2006 was presented as well as the internal audit report for the certification body including accepted corrective actions.

The last management review meeting (concerning 2005) was held on February 1st, 2006. The next meeting will take place in early 2007.

Internal audits and the management review are described in clause 6.2 of the QMM IS Chapter 6 (QMM IS = Quality Management Manual for Industrie Service).

The internal audit plan for 2005 and 2006 was presented as well as the internal audit report for the certification body including accepted corrective actions.

The last management review meeting (concerning 2005) was held on February 1st, 2006. The next meeting will take place in early 2007.

12. COMPLAINTS MECHANISM

The complaints procedure is described in procedure QMV 2.004.

13. SPECIAL FACTS TO BE NOTED

Note: For better correlation between the ExCB and ExTL during the post assessment process, the text below concerning subcontracting is the same as in the ExCB report.

Subcontracting, use of other labs and use of other locations within TÜV Rheinland Industrie Service GmbH

TÜV Rheinland Industrie Service GmbH operates its own laboratory in Cologne and, depending on the standards/clauses to be tested, at other locations (OTLs).

One of the own laboratory is located in Halle (Saale), Germany, where UV tests will be performed. Two subcontracted laboratories are used in the IECEx Scheme operation: EXAM in Bochum (an IECEx approved laboratory within the scope of subcontracting) and TÜV Rheinland Product Safety GmbH, located in Cologne.

Furthermore, two external laboratories are used in order to perform specific tests within IECEx operation. These are Schorch Elektrische Maschinen & Antriebe GmbH, Mönchengladbach, Germany and Mitutoyo Messgeräte GmbH, Neuss, Germany. In the case of Schorch and Mitutoyo test personnel from the main laboratory in Cologne will perform the tests (use of laboratories only). In order not to infringe the confidentiality rules, all test samples and all documentation brought to Schorch or Mitutoyo will be made anonymous by using an individual project code number on test samples and documents.

All tests performed outside their own laboratory are shown in a document mentioning standard, clause(s), responsible test lab, description of test(s) and the relevant work instruction. In the case of subcontracting, contracts between TÜV Rheinland Industrie Service GmbH and EXAM as well as TÜV Rheinland Product Safety GmbH are existent. For the case where laboratories are used by TÜV Rheinland Industrie Service GmbH (Mitutoyo in Neuss and Schorch in Mönchengladbach) user contracts exist. During the assessment, a member of the IECEx assessment team checked the activities related to IECEx operation at the location of Schorch in Mönchengladbach.

For the external laboratories used for IECEx operation the calibration situation was checked and found to be acceptable.

Concerning EXAM, Bochum, as subcontracted laboratory the scope of EXAM was checked against the tests foreseen for subcontracting and was found to be acceptable. However, the test clauses in IEC 61079-28 (Protection of equipment and transmission systems using optical radiation) does only concern Ex tests related to ignition. Hence, EXAM can be accepted for ignition testing according to IEC 61079-28.

14. COMMENTS

During the assessment, the audit team made observations leading to actions items. The applicant within a short time resolved all the actions items. The assessment team then recommended acceptance as an IECEx ExTL.

Standards accepted but with comment:

Number	Title	Clearance
60079-1	Electrical apparatus for explosive gas atmospheres Part 1: Construction and verification test of flameproof enclosures of electrical apparatus "d" Comment : First project in IECEx to be reviewed by the assessment team	OK with Comment
60079-5	Electrical apparatus for explosive gas atmospheres Part 5: Powder filling "q" Comment: First project in IECEx to be reviewed by the assessment team	OK with Comment
60079-6	Electrical apparatus for explosive gas atmospheres Part 6: Oil-immersion 'o' Comment: First project in IECEx to be reviewed by the assessment team	OK with Comment

15. RECOMMENDATION

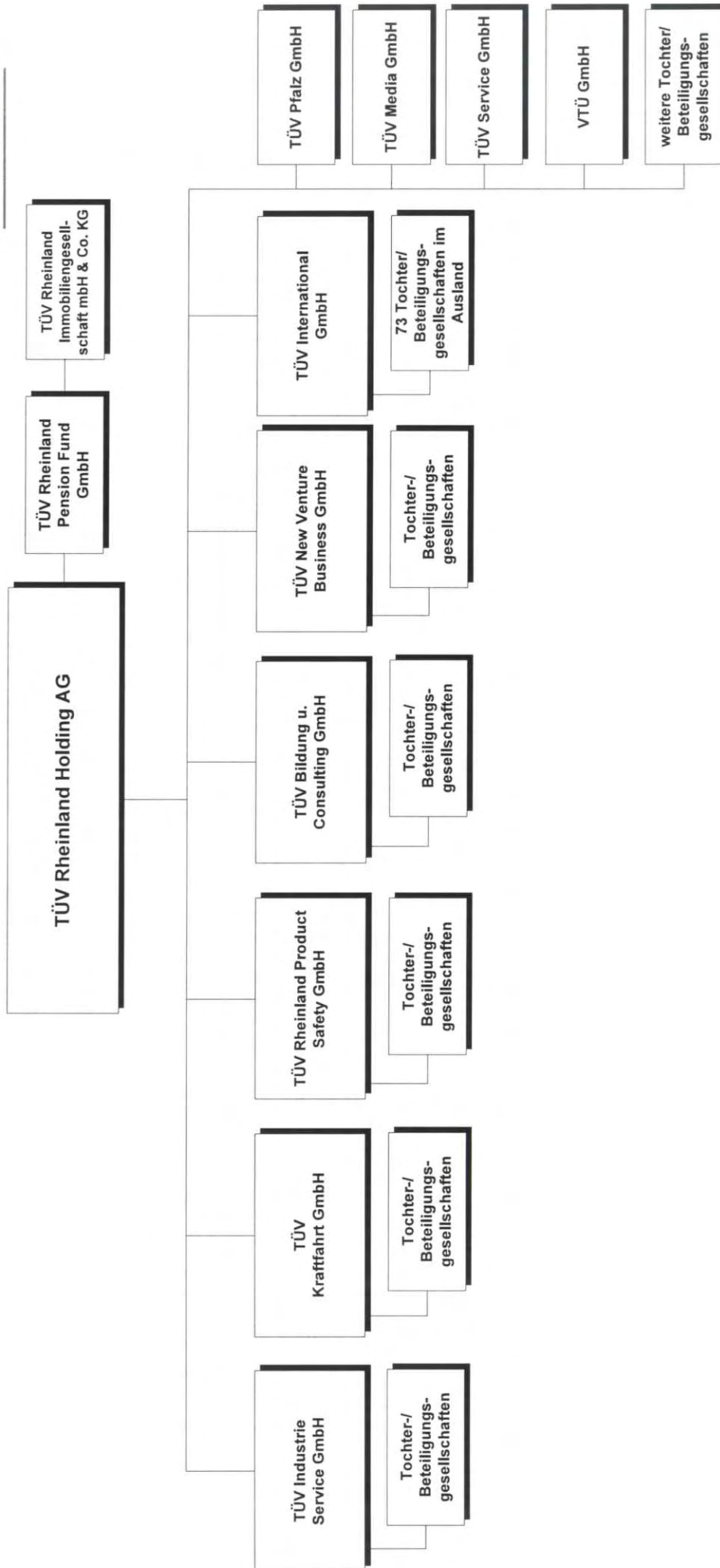
Based on the initial assessment performed between May 16th and 18th, 2006, the assessment team recommends acceptance of TÜV Rheinland Industrie Service GmbH as an IECEx Testing Laboratory for the scope listed in clause 1.6 (clearance column) of this report.

Heinz S. Berger Team Leader	William E. Dunn Expert Assessor	Vijay K. Varma Expert Assessor
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24th July 2006

List of Annexes:

- Annex 1: Overall Organization Chart of TÜV Rheinland Group
- Annex 2: Organization Chart of TÜV Rheinland Industrie Service GmbH
- Annex 3: Accreditation Certificate for TÜV Rheinland Industrie Service GmbH ISO/IEC 17025





Quality Management

QM Declaration

Number: QME 32
Annex 1

Revision: 4

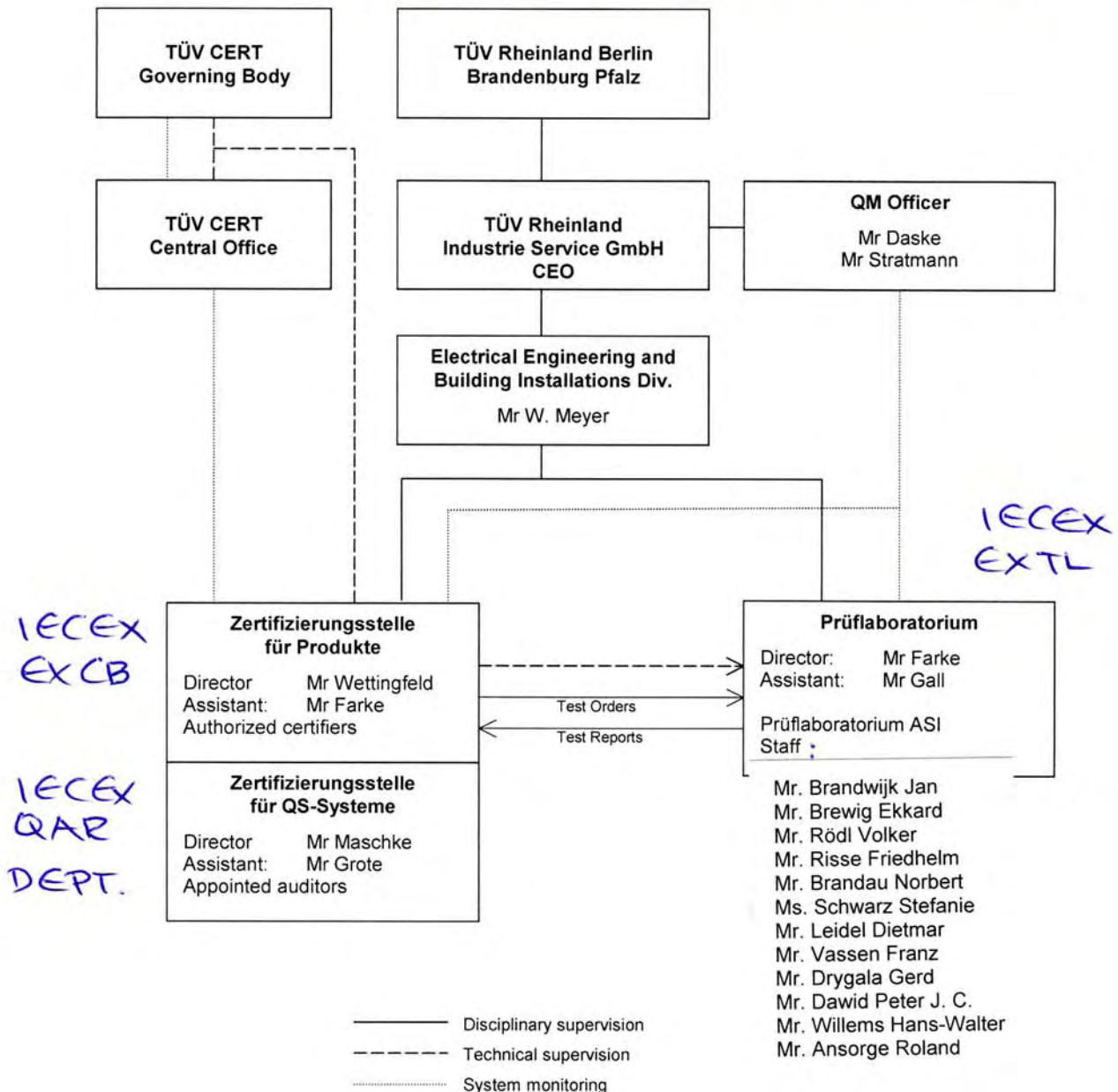
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CERTIFICATION

Organisation chart of TÜV CERT-Zertifizierungsstellen
für Produkte und QS-Systeme nach Richtlinie 94/9/EG für Ex-Schutz

Issue 03/2006

1 QS SYSTEMS & ATEX REGULATION



AKKREDITIERUNG



Die Zentralstelle der Länder für Sicherheitstechnik (ZLS)

– vertreten im Deutschen Akkreditierungsrat –
bestätigt hiermit, dass die

**TÜV Anlagentechnik GmbH Unternehmensgruppe
TÜV Rheinland/Berlin-Brandenburg
Am Grauen Stein, 51105 Köln**

die Anforderungen des § 9 Abs. 2 Gerätesicherheitsgesetz (GSG)
und der Norm DIN EN 45 001 erfüllt sowie die Kompetenz besitzt,

**Geräte und Schutzsysteme zur bestimmungsgemäßen
Verwendung in explosionsgefährdeten Bereichen**

im Geltungsbereich der EG-Richtlinie 94/9/EG entsprechend den
Bestimmungen des Akkreditierungsbescheides Nr. 5.ZLS/5.ZLS/3926-1/100/02
zu prüfen.

Die Akkreditierung ist gültig vom **01.01.2002** bis zum **31.12.2006**.
DAR-Reg.-Nr.: **ZLS-P-366/02**

München, den 24. Januar 2002

Feitenhansl
Leiter der ZLS