



EXMC/443/DV  
May 2008

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

**Title: IECEx Assessment Report for the acceptance of *Korea Testing Laboratory (KTL)* as an IECEx Certification Body (ExCB) within the IECEx Scheme**

**To: Members of the IECEx Management Committee, ExMC**

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**INTRODUCTION**

This document contains the IECEx Assessment Report for the acceptance of *Korea Testing Laboratory (KTL)* as an IECEx Certification Body (ExCB) within the IECEx Scheme.

This report is hereby submitted for voting.

Please consider this assessment report and return the completed voting form (separate - in Word Format) to the Secretariat by **16<sup>th</sup> July 2008**. Your speedy response to the voting process will be very much appreciated.

*Chris Agius*

Chris Agius  
Secretary IECEx

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# IECEx ASSESSMENT REPORT FOR KTL ExCB (IECEx Certification Body)

**Type of Assessment:** (please mark)

Initial Assessment for Candidate ExCB **X**

## 1. OBJECT AND FIELD OF APPLICATION

### **1.1. Country:**

Republic of Korea

### **1.2. Name of Candidate ExCB**

Korea Testing Laboratory (KTL)

### **1.3. Members of the Assessment Team**

Xu Jianping – Director of NEPSI - IECEx Lead Assessor in Training and Team Leader  
Jim Munro – Chairman Panel of Assessors – Lead IECEx Assessor  
Ron Webb – FM Approvals Ltd - Expert Assessor

### **1.4. Place and Date of Assessment**

222-13 Guro-3 dong, Guro-gu

Seoul, 152-718, Korea

Tel: +82 2 8601 309

Fax: +82 2 8601 610

Web: www.ktl.re.kr

28-30 November 2007

### **1.5. Assessment References**

1. IECEx 02 Third Edition 2006-11 IECEx Scheme Rules of Procedure
2. IECEx OD 003/V1 IECEx Assessment procedures
3. IECEx OD 005/V2 Quality System requirements for manufacturers
4. IECEx OD 009/V1 Issuing of CoCs, ExTRs and QARs
5. IECEx Documents OD025/V1 and ExMC/161/CD Management of assessment and surveillance programs for manufacturers (includes QAR forms)
6. ISO/IEC Guide 65:1996
7. IECEx Document OD 017/V3 Drawing and documentation guidance
8. ExCB application documents dated March 2007

### 1.6 Scope of Application

Number	Title
60079-0	Explosive atmospheres - Part 0: Equipment - General requirements
60079-1	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures 'd'
60079-2	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosures 'p'
60079-5	Explosive atmospheres - Part 5: Equipment protection by powder filling 'q'
60079-6	Explosive atmospheres - Part 6: Equipment protection by oil immersion 'o'
60079-7	Explosive atmospheres - Part 7: Equipment protection by increased safety 'e'
60079-11	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety 'i'
60079-15	Electrical apparatus for explosive gas atmospheres - Part 15: Construction, test and marking of type of protection 'n' electrical apparatus
60079-18	Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation 'm' electrical apparatus
60079-30-1	Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements
62086-1	Electrical apparatus for explosive gas atmospheres – Electrical resistance trace heating – Part 1: General and testing requirements

**Note:** The recognized scope for KTL is limited only for Group II, where relevant.

### 1.7 Candidate ExCB Persons Interviewed

Name	Position
Chang-Min Lee	Researcher Certification Management Team
Susan Choi	International Affairs Coordinator
Chang-Ho Ko	Quality Manager
Jun Gu Kang	Director/Chief Researcher Equipment Safety Team
Jong-Hak Yoon	Director of the Factory Inspection Team

### 1.8 Legal Entity of the Candidate ExCB

Korea Testing Laboratory (KTL) was founded in April 1966 (Article 41 of the Promotion of the Industrial Technology Innovation Law and the Decree 7494 in the Civil Law), and it is registered to the Taxation Department of Korea under the registration number 113-82-06228. The purpose of foundation is to provide public safety performing certification, product testing, factory inspection and calibration services to clients.



As a third party testing and certification institute in Korea, KTL was officially appointed as a National Certification Body under the “Industrial Safety & Health Law” since Jan 21, 1998. A copy of this law was viewed. It has also been appointed as a National Certification Body under ‘High Pressure Gas Safety Management Law’ since 1997.

### **1.9 Associated Testing Laboratories**

The ExTL is integral with ExCB but is located at two locations. One is at the same site at the ExCB and the other is located in Ansan. There are no certification activities carried out at Ansan.


The legal status of ExTL-KTL and ExCB-KTL is the same since the testing laboratory is integrated with the certification body. However, Quality manual for certification procedures are described and controlled separately from other manuals.

### **1.10 Associated Certification Functions**

KTL is involved on a number of certification schemes including:

- IECEE Scheme
- IECQ Scheme
- Local certification for electrical appliances, medical devices, EMC.

### **1.11 National Marks and Certificates**

KTL is currently operating Korea’s National Certification Mark, the  mark scheme under the Industrial safety & Health Law. The mark is owned by the local Government while KTL is licensed for issuing, controlling and maintaining of the mark certification. This includes Ex products. This is a type 2 scheme involving testing of the products and market surveillance. There is no assessment of manufacturers.

### **1.12 Financial Support**

KTL is a non-profit organization of approximately 400 people. It is supported by the Government (the Ministry of Commerce, Industry & Energy). It also derives income from its certification and testing operations.

### **1.13 History**

The operation was founded in 1966 as Korea Fine Instrument Center (FIC) focused on calibration. In 1977 it started testing services for foreign certification (UL, FCC etc). In 1978 it began Calibration Services, at first in Korea. In 1999 it was renamed as Korea Testing Laboratory (KTL). In 2003 construction commenced of KTL Anson Center which is now operational. In 2004 it opened an office in Guangzhou in China and more recently an office in California, USA.

### **1.14 Standards Accepted**

See clause 1.6 of this report

### **1.15 National Differences to IEC Standards**

National differences to IEC standards are listed in the latest version of the IECEx Scheme Bulletin.

## 2. ORGANISATION

### 2.1 Names, Titles and Experience of the Senior Executives

Name	Title	Experience
Young-Bok Jeong	Director General Certification and Assessment Center	24 years experience at KTL, in audio/visual, inspection and certification, not in Ex
Lee Jong-Myung	Director Safety Certification Center	29 years experience in appliance testing and certification, with 10 in Ex
Jong-Hak Yoon	Director of the Factory Inspection Team	16 years at KTL, and 4 years in the field of Factory Inspection

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

Name	Title	Experience
Chang-Ho Ko	Quality Manager	29 years as engineering manager and 4 as a quality manager

### 2.3 Name and Title of Nominated Principal Contact

Name	Title	Comments
Chang-Min Lee	Researcher Certification Management Team	
Dong-Kyu Ahn	Inspector	

### 2.4 Name and Title of Signatories for Certification

Name	Title	Comments
Lee Jong-Myung	Director Safety Certification Center	
Young-Bok Jung	Director General Certification and Assessment Center	Only when Lee Jong-Myung is not available

### 2.5 Other Employees in ExCB activity

Name	Title	Responsibility
Chang-Min Lee	Researcher Certification Management Team	5 years in certification management. He has been working with Ex for one year. In IECEX Scheme he will be responsible for the review of the ExTR and QAR. He will be supported by experienced staff from the ExTL with procedures in place



## **2.6 Organizational Structure**

Organizational Structure is shown in Annexes 1 and 2.

## **2.7 Administration**

### **2.7.1 Administrative Structure**

See above.

### **2.7.2 Indemnity Insurance**

There is a policy covering professional indemnity/legal liability that was viewed.

## **3. RESOURCES**

There are a total of 5 personnel in the ExCB in two different areas; the Certification Management Team and the Factory Inspection Team. These are also supported by the Customer Service Team.

## **4. COMMITTEES / Governing Board / Appeals / Advisory Board**

There is a Certification Assessment Committee and testing and research assessment committee.

The Certification Assessment Committee comprises representatives from academia, customer organizations, industry, outside experts and relevant persons from KTL. Its maximum number is 12 and the Chairman is appointed by the President of KTL. It is responsible for policy matters related to certification and also acts as an appeals committee.

## **5. CERTIFICATION OPERATIONS**

### **5.1 National Approval/Certification Methods**

KTL has been a National Certification Body since 1997 under High Pressure Gas Safety Management Law and a National Certification Body under Industrial Safety & Health Law since 1998.

### **5.2 Certification Policy**

There is a quality policy which is to 'Provide world-class customer satisfaction'.

The IECEx certification policy/procedure is described in QM005 Manual for Product Certification and P516 Procedure for the IECEx Certification Service, and is based on document IECEx OD 009.

### **5.3 Application for Certification**

This is covered in Clause 8 of P516. Applications come through the Customer Service Team, but there will often have been discussions with the applicant by technical staff prior to this.

### **5.4 Withdrawal and Cancellation of Certificates**

There are procedures to cover the withdrawal and cancellation of certificates.

## 6. STATISTICS

### 6.1. Certificates Issued

Number of application, certificates and test reports issued in the preceding three years for each type of protection:

Number of application, certificates and test reports issued									
Standards	Year								
	2005			2006			2007(as of September)		
	A	C	T	A	C	T	A	C	T
60079-1	169	167	2	136	132	4	85	81	4
60079-2	22	20	2	31	31	-	2	2	-
60079-5	-	-	-	-	-	-	-	-	-
60079-6	-	-	-	-	-	-	-	-	-
60079-7	30	30	-	42	42	-	22	22	-
60079-11	37	37	-	53	53	-	7	7	-
60079-15	16	14	2	16	14	2	38	32	6
60079-18	11	11	-	8	8	-	1	1	-
60079-30-1	-	-	-	-	-	-	-	-	-
62086-1	-	-	-	-	-	-	-	-	-
Sum	285	279	6	286	280	6	155	145	10

NOTE: 60079-0 is incorporated in the above.

- A : Application; - C : Certificates issued; - T : Test reports issued.

## 7. DOCUMENTATION

### 7.1. Quality Manual

KTL has a top level Quality Manual covering the higher level requirements of the scheme and below it are additional manuals containing procedures which also meet the scheme's requirements.

### 7.2. Procedures

There are several manuals that come under the quality manual and also various procedures. Relevant ones include; QM002 Manual for Testing and Inspection Service, QM003 Quality Manual for QMS Certification, QM005 Product Certification Manual, QM008 Calibration Manual.

### 7.3. Work Instructions

At the next level are quality guidelines and internal procedures.

### 7.4. Records

Where relevant procedures include a statement about the retention times that are to be applied the documents are produced in accordance with those procedures.



The procedures ensure that all records related to IECEx activities are maintained with a retention time of 10 years. The assessment team examined the systems for retaining records and was satisfied that the requirements of Guide 65 and IECEx were met.

#### **7.5. Document Change Control**

Document control is covered by procedure P101. In general only electronic documents produced in the system are regarded as controlled documents. However, where required it is possible for hard copies of documents to be controlled by agreement with the quality manager.

There is a company-wide system for control of external documents such as IEC standards and IECEx procedures in the quality system. However, it was noted during the assessment that documents used for IECEx, including the relevant standards, were not being controlled under that system. This issue was subsequently resolved to the satisfaction of the assessment team.

### **8. CONFIDENTIALITY**

Each employee is required to ensure confidentiality of the customer's information. This is addressed in 5.6 of the quality manual and in procedure P105. They are required to sign an agreement covering confidentiality and conflict of interest. Examples of such signed agreements were viewed.

The assessment team also noted that the confidentiality agreements signed by the members of the certification and assessment committee had not been retained in the record system. Arrangements have been made to have them signed again with the records being retained for a longer period. This issue was resolved to the satisfaction of the assessment team.

### **9. PUBLICATIONS**

There are publications that are issued covering and promoting the activities of KTL. There is also a specific one that has been produced to promote the Ansan operation.

### **10. NATIONAL ACCREDITATION**

KTL is officially appointed by the Government as a National Certification Body under the "Industrial safety & Health Law". KTL is accredited as a certification body for a local IAF scheme called Korea Accreditation System (KAS) for ISO/IEC Guide 65 (Annex 3). However, the scope does not currently include Ex certification. It is planned to seek to have this scope extended in about June 2008. This will need to be monitored because there may be a need for a surveillance visit if this is not achieved in time.

*Secretariat Remark: On this basis, KTL will be included in the program for annual surveillance visits by IECEx unless accreditation scope is extended to include Ex Standards.*

### **11. RECOGNITION AND AGREEMENTS**

It has 72 MOUs from 35 countries. They include KEMA (Netherlands), TUV Rhineland (Germany), NEPSI (China), LCIE (France) and TIIS (Japan).





## **12. INTERNAL AUDIT AND PERIODIC MANAGEMENT REVIEW**

The procedure for internal audit is P112. An internal audit is carried out in each area at least once a year. A summary report is prepared to cover all the audits that have been done for the year. This indicated that the Ex area and the operation at Ansan were covered in the internal audits. The audits cover both ISO/IEC Guide 65 and 17025. Individual reports include any non-conformity raised. Technical staff is used as part of the audit team to provide cross-checking of activities in order technical areas.

Management review is carried out once a year in December. Data is sought from each department and a report is compiled by the quality manager. An agenda is prepared and discussed by the President with the directors prior to the meeting. The review meeting includes the top managers from each department. A report is made of the meeting and reviewed and signed off by the President. It then goes back to the departments. The report of the meeting held on 18 December 2006 was viewed. P102 covers the procedure for this process.

## **13. SUBCONTRACTING, USE OF OTHER LABS AND USE OF OTHER LOCATIONS**

KTL have an extremely comprehensive range of test equipment. The only test equipment identified for which they do not have capability was the charging tests of IEC 60079-0. They indicated that they will commit to purchasing and commissioning this equipment.

There is a document G231 Guideline for Witness Test that comprehensively covers the requirement for witness testing and includes a general reference to IECEx ODs. It would be useful to also include a general reference to IECEx documents.

## **14. TRAINING**

At the time of the assessment visit there was no evidence of training programs for the certification staff. It was advised that some training had been done on IECEx rules and procedures but there were no formal records of this training. No definitions of competency needs for ExCB staff were available and there were no records of their relevant competencies for certification of Ex equipment under the IECEx Scheme. Subsequently an effective, recorded training system, as assessed by the Assessment Team, was developed and put in place.

## **15. ASSESSMENT OF MANUFACTURERS AND ISSUE OF QARS**

The procedures for assessment of manufacturers are covered on G516. The person responsible for supervising this activity is the Director of the Factory Inspection Team. Some deficiencies were identified regarding the need to involve the head of the ExCB, the organization chart that showed this activity and the need for clear application of OD005. All these were subsequently resolved to the satisfaction of the assessment team.

## **16. COMPLAINTS AND APPEALS (Including appeals to IECEx)**

The requirements and arrangements for complaints and appeals are well defined and documented. Appeal procedures are described in the clause 5.12 of the Quality



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Manual of KTL QM005, Manual for Product Certification and P115, Procedure for Controls of Resolution of Complaints.

When KTL receives appeals, any action to the appeal is approved by the Certification Assessment Committee, which is operated to observe the impartiality and non-discrimination of the KTL certification activities.

At the time of the assessment the procedures on appeals did not cover appeals to the IECEx Scheme or how this is conveyed to customers. The procedures were subsequently revised to address this to the satisfaction of the assessment team.

When a complaint is received actions are taken to resolve them. There is a specific form that may be used but it is not used in all cases. The system is overseen by the Auditor who answers directly to the President (see Annex 1). The Quality Manager and Customer Service also have responsibilities for complaints and the Directors are responsible for their areas of responsibility. The auditor keeps copies of the documentation for all complaints but there is no complaints register.

## **17. SPECIAL FACTS TO BE NOTED**

### ***17.1 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 Guide 65

### ***17.2 Production of Reports***

It was noted that KTL had not had experience producing auditing reports of manufacturers along the lines required for the QARs in the Scheme. See Recommendations below.

## **18. COMMENTS (Including issues found during assessment)**

A number of issues were found during the assessment as indicated earlier in this document. All were resolved to the satisfaction of the assessment team. They are also listed in Annex A of the site assessment report together with the details of how they were resolved, retained by the IECEx Secretariat.

## **19. RECOMMENDATIONS**

Based on the assessment performed on 28-30 November 2007 and follow up reviews by the Assessment Team, KTL is recommended for acceptance in the IECEx scheme as an IECEx Certification Body (ExCB) according to the scope of the standards listed in this document subject to the additional recommendation below.

In addition due to the lack of experience KTL has in auditing to IECEx requirements and the issuing of IECEx QARs, it is recommended that after acceptance of KTL as an ExCB the first two QARs issued be reviewed.

Xu Jianping Team Leader	Jim Munro Lead Assessor	Ron Webb Assessor
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Date: 16 February, 2008

**Independently reviewed by the IECEx Secretariat**



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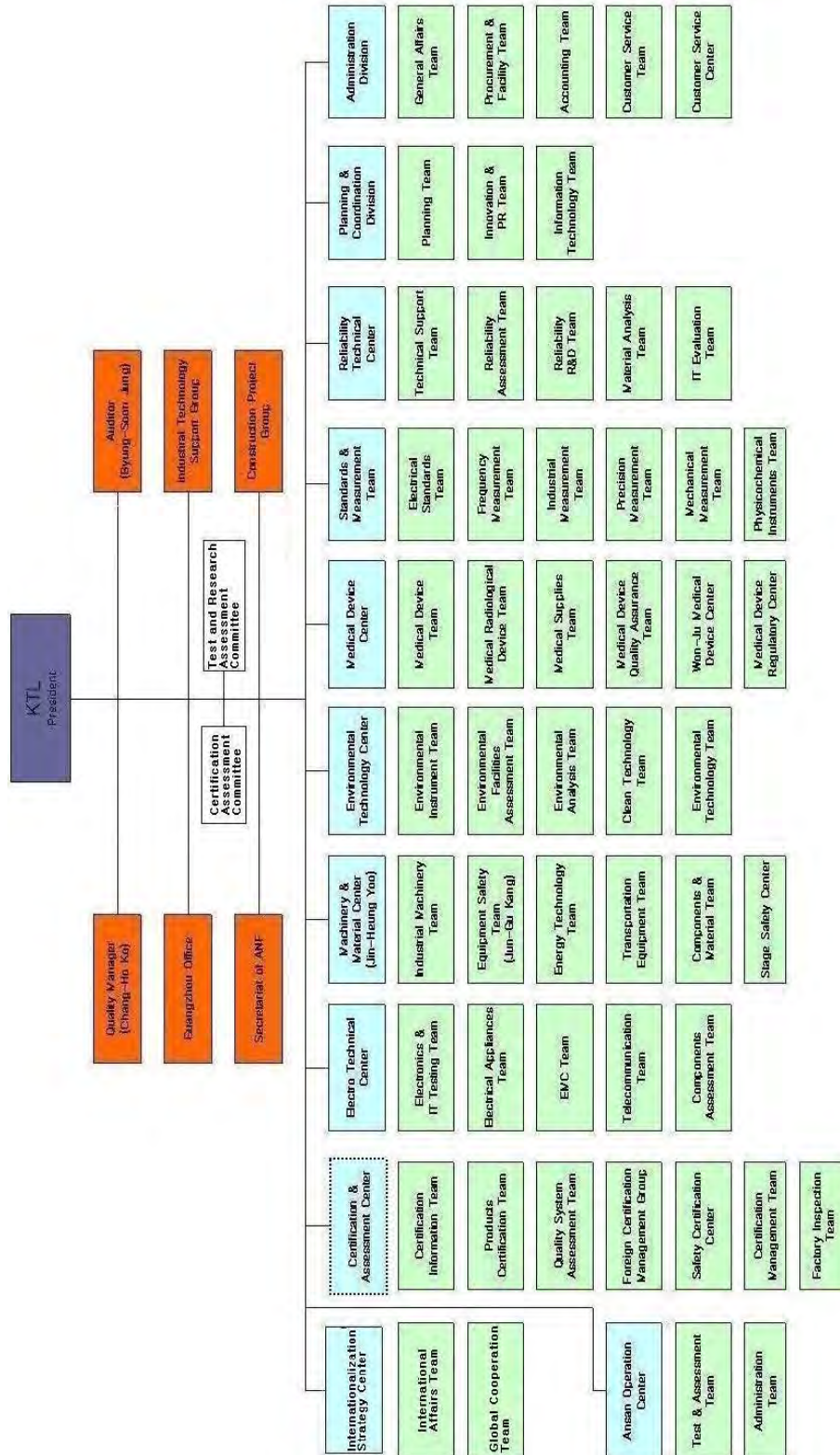
### **List of Annexes:**

1. Overall Organization Chart of KTL
2. Organization Chart of KTL Ex-Team
3. Accreditation from Korea Accreditation System (KAS)

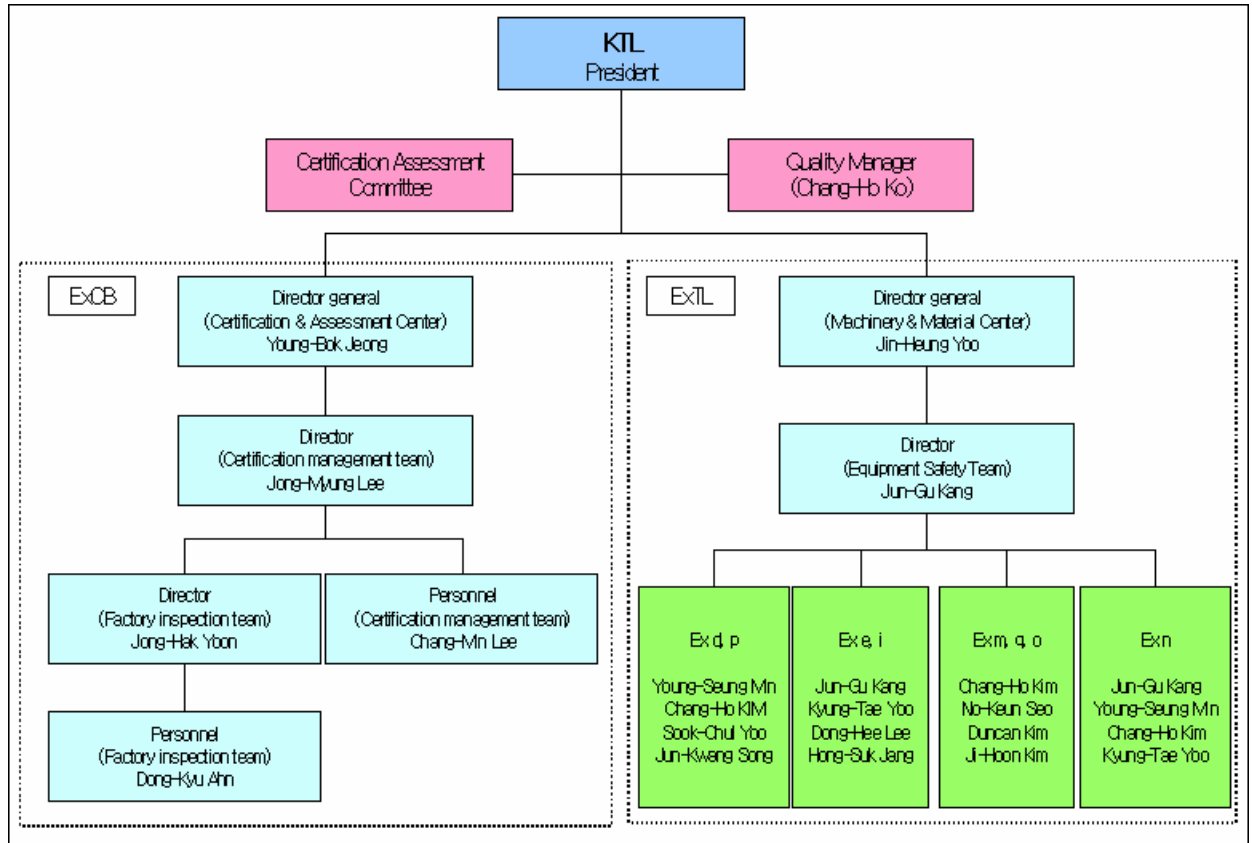


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## Annex 1 Overall Organization Chart of KTL



## Annex 2 Organization Chart of KTL Ex-Team





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**Annex 3**  
**Accreditation from Korea Accreditation System (KAS)**

NO. KAS-P-001

## **CERTIFICATE OF ACCREDITATION**

1. Name of certification body : Korea Testing Laboratory
2. Name of representative : Hong, Jong-Hee
3. Registration number of corporation : 114271-0005331
4. Address of corporation : 701-7, Yeoksam-Dong, Gangnam-ku, SEOUL  
135-080, Korea
5. Address of certification office : 222-13, Guro-3Dong, Guro-Gu, SEOUL  
152-718, Korea
6. Product, standard and scope of accreditation :
  - Electric equipment and optical appliances (191, 192: computer and office appliances, miscellaneous electrical machineries and electrical converters; electronic components, video, audio and communication equipments- cable and cords; switches for electrical appliances; capacitors as components; installation accessories and connection devices; safety transformers and similar equipments; electrical appliances for household and similar equipment; motor tools; audio, video and similar electronic appliances; IT and office appliances; lightings; electrical motors; etc.)
  - IEC, CISPR, EN, FCC, K, KS, etc.
  - System Type III, V
7. Period of validity : December 15 , 2005 ~ December 14 , 2009

This is to that the above body has been accredited for specific product certification systems in accordance with the National Standards Act and the requirements of ISO/IEC Guide 65:1996, inclusive of the KAS Guidance on the Accreditation and Surveillance of Product Certification Bodies.

December 15, 2005

Administrator,  
Korea Accreditation System(KAS)