



**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 PSB Corporation as an IECEx
Certification Body (ExCB)**

INTRODUCTION

This document contains the IECEx Assessment Report for the acceptance of *PSB Corporation* as an ExCB within the IECEx Scheme.

Please consider the assessment report which is issued for final vote by 2006 06 26.

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IECEX ASSESSMENT REPORT FORM (IECEX Certification Body – ExCB)

Type of Assessment:

Initial Assessment for Candidate ExCB X
Surveillance Assessment for existing ExCB

1. OBJECT AND FIELD OF APPLICATION

1.1 **Country:**
Singapore

1.2 **Name of Candidate ExCB**
PSB Corporation

1.3 **Members Of The Assessment Team**
Mr C. Agius – Team Leader
Prof Xu Jianping

1.4 **Place And Date Of Assessment**
PSB Corporation
1 Science Park Drive
Singapore 118221

Site Assessors:
Mr C. Agius- Lead Assessor
Prof Xu Jianping

Following a review of all documentation submitted, a site assessment was conducted on 2 + 3 August 2005. The Team noted the application from PSB as an ExCB working with BKI of Hungary as ExTL. BKI have been subjected to an IECEx re-assessment in accordance with the IECEx assessment procedures. The assessment team note the positive conclusion of the BKI site assessment. The results of this assessment are available in ExMC voting document ExMC/305/DV. The assessment of PSB coincides with the re-assessment of BKI.

The assessment team noted a formal contract between PSB and BKI.

In noting the distance between the ExTL (BKI) and PSB the ExCB, the assessment team paid close attention to the detailed operational systems and processes between the two organisations and, given a number of changes and updating of PSB internal procedures, are satisfied that sufficient level of control by PSB over the ExTL exists, which includes regular visits between organisations and inclusion of BKI in the PSB Internal audit Programme. Further details are presented within this report.

1.5 **Assessment References**

Document:

- i) ISO/IEC Guide 65
- i) IECEx 02 Second Edition
- ii) IECEx Operational Document OD/005, OD/009, OD/017, ExMC/161/CD, OD 012



- iii) ExCB application documents
- iv) IECEX Operational Document OD/003 (ExMC/100/CD)

1.6 Scope Of Application

During the on-site visit the scope of application was confirmed to align with the scope of application as follows:

Product Category	Standard
General Requirements	IEC 60079-0
Flameproof Enclosures	IEC 60079-1
Pressurised Equipment	IEC 60079-2
Increased Safety	IEC 60079-7
Intrinsic Safety	IEC 60079-11
Encapsulation	IEC 60079-18
Gas Detectors	IEC 61779-1 and IEC 61779-4

Special Points for Noting: While IEC 61241 (Dusts) were included in the original application, subsequent discussions with PSB resulted in the withdrawal of this from their scope of application

1.7 Candidate ExCB Persons Interviewed

During the course of the site visit to PSB Corporation all of the Ex department and related personnel were interviewed. The following are examples of some of the management and staff interviewed during the assessment.

Name	Position
Chong Weng Hoe	Sen Vice President
Tan Chiew Wan	Vice President
Benny Chua	Quality Representative
Desmond Soh	Deputy Quality Representative
Paul Tan	Ass Vice President
Benjamin Foo	Ass Vice President
Vincent Wee	Ass Vice President
Ang See Wee	Engineer
Teo Kim Hock	Engineer
David Sim	Engineer
Lau Keong Ong	Vice President - Mechanical
Sun Qiqing	Ass Vice President - Mechanical

Others as they relate to specific processes, e.g. Human Resources, Security etc. See organisation chart attached as Annex A.

1.8 Legal Entity Of The Candidate ExCB

PSB Corporation provides a vast range of testing and certification of products.

PSB Corporation is an incorporated Company in Singapore, ACRA Registration number 199002667R.

1.9 Associated Testing Laboratories

Names of Laboratories	Address
BKI ExVÁ	H-1037 Budapest, Mikoviny S u. 2-4 Hungary



A formal agreement has been sighted by the Assessment Team with the assessment determining that PSB maintain control over the ExTL and including regular visits and inclusion in the PSB internal audit system. The assessment team saw the cooperation between both ExCB and ExTL activities as of vital importance while still yet maintaining the independence between testing and certification decisions. In sighting copies of internal audits performed by PSB on BKI, the assessment team are satisfied that sufficient level of control exists.

It should also be noted that as the National accreditation of PSB as a Certification Body does not yet include Ex activities within the scope, IECEX Assessors will be required to conduct annual visits to PSB Corporation as part of IECEX surveillance.

1.10 Associated Certification Functions

PSB Corp are well known for the various certification activities, other than Ex which include:-

- Product Safety
- Numerous Areas and categories of Electrical safety testing and Certification
- Acceptance as an IECEE CB Scheme NCB
- Management System Certification
- Certification activities on behalf of MRA Partners
- Radio Communication equipment
- Cable Testing facilities and Certification

With a total staff level greater than 500 PSB and almost all of its activities for both Testing and Certification covered by Singapore Accreditation Council accreditation, PSB are very well credentialed as an International Testing and Certification Body

1.11 National Marks

PSB operates its own safety Marks,

1.12 Financial Support

Self funded. PSB maintains its own financial and operational management.

1.13 History

On 1st October 1973 the Singapore Institute of Standards and Industrial Research (SISR) was established as an independent statutory body ending the affiliation with the Economic Development Board. Additional functions and powers were vested in the Institute, the institute's operations were reviewed and a restructuring of the organisation was carried out in January 1974 to provide a more efficient service-oriented organisation to serve industry.

1974-75 saw an extension to the Institute's scope of services, besides an extension of its Quality Certification Scheme to provide good housekeeping and safety testing of consumer products. Internationally SISR has gained recognition for its programmes in quality control technical information and in projects costing and evaluation.

In 1991 SISR gained status to join the IECEE CB Scheme.

In April 1996 The Singapore Productivity and Standards Board (PSB) was established. Its mission being to raise productivity so as to enhance Singapore's competitiveness and economic growth for a better quality of life for its people. PSB continues to participate in the IECEE CB Scheme.

On 1st April 2001 PSB Corporation Pty Ltd was established as a subsidiary of the Singapore Productivity and Standards Board SPRING Singapore. Its mission is to be a one-stop integrated service provider to help companies achieve business excellence through people, products and processes. It has four business groups: Academy, Consultancy, Technology and Testing. PSB



Corporation is a certification body designated by Singapore Productivity Standards Board (PSB) that is appointed by the Singapore National Committee (IEC), to implement the acceptance as an issuing and recognising NCB. PSB Corporation is the NCB as well as the CBTL. PSB Corporation continues to participate in the IECEE CB. It has also numerous agreements (mainly bilateral) with similar bodies CSA, TUV-PS, LCIE, KTL, JQA and more recently BKI of Hungary.

1.14 **Standards Accepted**

As per standards listed in Section 1.6 above.

1.15 **National Differences To IEC Standards**

PSB and Singapore have declared no National differences to IEC Standards.

2. ORGANISATION

2.1 Names, Titles And Experience Of The Senior Executives

Name	Title	Experience (Years)
Mr Henry Heng	CEO PSB	25
Mr Chong Weng Hoe	Senior Vice President	13
Mr Richard Hong See Yen	VP – International Operations	10
Mr Benjamin Foo	Ass VP – Quality + Lab Recog,	12
Ms Tan Chiew Wan	VP – Certification + Inspection	22
Ms Chay Swee Gee	VP – Electrical + Electronics	17
Mr Deng Jun Hong	VP – Telecoms + EMC	07
Mr David Lau	VP – Mechanical + Building	15
Dr Chong Hooi Long	VP – Chemical + Materials	16
Mr Paul Tan	Ass VP – Electrical	29

2.2 Name, Title And Experience Of The Quality Management Representative

Name	Title	Experience (Years)
Mr Benjamin Foo	Quality Manager	12

2.3 Name And Title Of Nominated Principal Contact

Name	Title
Ms Tan Chiew Wan	VP – Certification & Inspection

2.4 Name and Title of Signatories for Certification

Ms Tan Chiew Wan	VP – Certification & Inspection
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2.5 Other Employees in ExCB activity

2.5.1 Total Numbers

Total number in Certification Body (Excluding ExTL staff): 10

2.5.2 Ex Certification Personnel

Total number in IECEX Certification activities is 10. This includes 4 of the staff capable of conducting IECEX Factory audits to OD 005.

Three of these were subjected to a full and detailed interview by the IECEX Assessment Team Leader to determine their level of knowledge and understanding of auditing in accordance with



IECEX OD 005 and ExMC/161/CD. It was also noted that these three are also appointed and experienced QMS auditors with detailed technical knowledge and understanding of Ex standards and Ex technology. All three were considered to demonstrate a high level of knowledge regarding both Ex technology and also the differences in conducting auditing under IECEx and auditing under ISO 9001. This demonstrated that the procedure for the training and selection of PSB auditors for IECEx audits is sound.

2.6 Organisational Structure

See Organisation Chart at Annex A as an extract from the Quality Manual

2.7 Administration

2.7.1 Administrative Structure

PSB Operate an independent PSB Advisory Committee to advise and oversee their certification operations

2.7.2 Terms of Reference of the Governing Board

Terms of Reference for the Governing Board are specified in the Memorandum and Articles of Association of PSB Corporation Pte. Ltd. This document is held by the Planning and Business Development Department.

3. RESOURCES

Total number of PSB staff involved in the Ex Certification (certification and auditing) is 10

During the on-site assessment the team confirmed the availability of the necessary facilities. The Team were informed of additional resources made on a part-time basis. The conditions of such engagement were reviewed by the assessment team and found to ensure the same level of:

- Accountability
- Confidentiality
- Prevention of Conflict of Interest
- Overall Obligations to complying with IECEx Rules and Operating Procedures

That exists to both full and part-time resources.

Confidentiality and prevention/notification of possible conflict of interest agreements were sighted during the assessment visit.

4. COMMITTEES

Internal: PSB operate the Advisory Committee as mentioned in 2.7.2 above.

External: PSB participate in various technical committees and have undertaken to maintain their ongoing involvement and active participation in ExTAG along with providing input to the Singapore Member Body and National Committee to IEC TC 31

5. CERTIFICATION OPERATIONS

5.1 The PSB certification operations were reviewed in detail by the assessment team both during and prior to the site visit.

During the assessment visit the IECEx Assessment Team raised a number of items which they felt required expansion and/or clarification. The PSB management and staff responded positively and



updated their documentation to address the issues raised by the assessment team. To assist with this PSB has developed and issued IECEx Manual **WI-CIN-040**. This manual and its supporting procedures and forms were reviewed by the assessment team and found to fully meet the requirements of IECEx 02 and the supporting IECEx Operational Documents, such as OD 009, OD 005, OD 017, etc. Furthermore, the document control systems appear to ensure that all PSB Ex Staff and their participating ExTL are kept up to date with the latest versions of all IECEx Operational Documents and ExTAG decisions.

The Assessment team now concludes that the changes made to the documentation mean that all requirements of IECEx are now fulfilled.

PSB are commended for their approach to ensuring that applications for IECEx Certification are processed in a specific manner that prevents confusion with other parts and divisions of the PSB Corporation.

5.2 Certification Policy

The PSB Certification Policy is clearly defined in their Quality Manual.

5.3 Staff Work Instructions

The Quality Manual is now supported by a robust set of procedures and Work Instructions. These include procedures to assist the conduct of IECEx audits of manufacturers.

5.4 Application for Certification

The assessment Team concludes that the PSB application and operational procedures are non-discriminatory.

6. STATISTICS

While PSB statistics for issuing product Certification certificates in the non Ex electrical field are impressive, Ex represents a new and expanding business for PSB noting that in the region of South East Asia, the Ex field has not been regulated in a number of countries.

Since the original application for acceptance as an ExCB was received early 2005, PSB staff have undertaken significant training and exposure to the Ex field and, working with BKI (a well respected and long standing Ex Test Laboratory), are assured of possessing the necessary level of Ex skills to compliment their staff's knowledge and experience in Electrical and Mechanical product certification.

The assessment Team further noted the engagement of Mr Jim Munro, as a Senior IECEx Expert Advisor. In order to prevent any possible conflict of interest Mr Munro was not involved in the assessment of PSB in any way, and was not present during the site visit by the assessment team.

In noting that PSB accreditation does not cover Ex activities, IECEx will conduct annual surveillance visits of PSB including evaluation of certification files, as part of IECEx surveillance procedures.

7. DOCUMENTATION

Document and Change Control

The Assessment team have observed a very effective Document and Change Control system operating within PSB, which utilises a network system for easy access by all staff to the relevant procedures and forms.



8. RECORDS

The PSB procedures ensure that all records related to IECEx activities are maintained for a minimum period of 10 years. The assessment team examined the system for retaining records and also the recollection of data and were satisfied that the requirements of Guide 65 and IECEx were met.

9. CONFIDENTIALITY

All Staff and contractors working for PSB are subjected to a strict confidentiality agreement and notification of any possible conflict of interest. The assessment team reviewed completed forms along with publicly available documentation and is satisfied that the requirements of both ISO/IEC Guide 65 and IECEx requirements have been met.

10. PUBLICATIONS

Staff at PSB have been involved in preparing publications and presentations on Testing and Certification and provide technical meetings with their clients.

11. APPEALS

The PSB Quality system includes an appeals mechanism as required by ISO/IEC Guide 65 and also reference to the IECEx appeals process, if the complainant wishes to go further.

12. NATIONAL ACCREDITATION

The assessment Team noted that PSB hold national accreditation for ISO/IEC 17025 and Guide 65 for a range of their activities, with a total of 23 Pages listing the scope of SAC accreditation of PSB however as mentioned in this report, it does cover accreditation for the scope of Ex certification. Therefore, at this stage, the assessment team recommends annual surveillance by IECEx of the PSB ExCB functions.

13. RECOGNITION AND AGREEMENTS

The assessment Team noted various agreements and accreditations, which include:

- Accreditation at National Level for various activities
- IECEE CB Scheme
- Various other Bilateral agreements

14. QUALITY MANUAL

PSB Corporation maintain a full and comprehensive Quality Manual that is available on the computer network system for all staff to access. Following updating and expansion of WI-CIN-040 the assessment team now conclude that the Quality Manual meets the requirements of both ISO/IEC Guide 65 and IECEx Rules.

15. INTERNAL Audits AND PERIODIC REVIEW

The PSB Corporation Quality Management system provides for regular internal audits according to the PSB audit schedule. This internal audit schedule also now includes site audits of the BKI facility as their associated ExTL. The internal audit procedures were updated and now found to address IECEx procedures as part of the internal audit processes.



16. COMPLAINTS

The PSB Corporation Complaints system operated by PSB has been expanded to capture all possible complaints relating to IECEx services and also includes reference to the ExMC for any unresolved complaints.

17. WITHDRAWAL AND CANCELLATION OF CERTIFICATES

The PSB Corporation procedures provide clear guidance on when and how withdrawal or cancellation of certificates shall take place. The Assessment Team are satisfied that all IECEx requirements have been met.

18. SPECIAL FACTS TO BE NOTED

In noting that the accreditations of PSB Corporation do not include Certification activities for the field of Ex, the IECEx assessment team recommend annual surveillance visits in accordance with IECEx rules. This will also assist IECEx Members to gain confidence given PSB's entry to the field of Ex Certification.

19. RECOMMENDATION

With the successful completion of the site assessment and follow up actions concerning documentation:

The IECEx assessment Team hereby recommend acceptance of PSB Corporation as an IECEx Certification Body for the scope specified in 1.6.

Chris Agius
Team Leader

Prof Xu Jianping
Assessor

LIST OF ANNEX/ES

A – PSB Corporation Organisational Chart

Certification & Inspection Organisation Chart

