



PSB Singapore

# TEST CERTIFICATE

This Certificate is issued to

Cytech Technology Pte Ltd  
55 Ubi Avenue 1 #07-04  
Singapore 408935

## FOR

Product: LIGHTING CONTROL MODULE

Brand/Model: TWS01/02

Detail: Rating : 240VAC, 50Hz , 6A

Specification: IEC 60950-1: 2001 and EN 60950-1:2001 + A11:2004

Test Report: S08EEC01354/NCH1/CZ

## Summary

A sample of the product has been tested and is found to meet with the requirements of the above standard.

Vice President (Electrical & Electronics Centre)  
TÜV SÜD PSB Pte Ltd

Certificate No:  
02113

Date of Original Issue:  
25/06/2008

Date of Last Revision:  
-

Date of Expiry:  
24/06/2010

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Note: This Certificate is not a Certificate of Conformity.

# Test Report No. S08EEC01354/NCH1/CZ

dated 25 June 2008



PSB Singapore

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The terms and conditions governing the issue of this report are set out as attached within this report.

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## Subject

### TEST REPORT ON LIGHTING CONTROL MODULE

## Client

Cytech Technology Pte Ltd  
55 Ubi Ave 1 #07-04,  
Singapore 408935

Attn: Mr Chiu Lu Yung

## Sample Submission Date

27 May 2008

## Description of Sample(s)

Lighting Control Module

|                    |   |                  |
|--------------------|---|------------------|
| Model              | : | TWS01/02         |
| Ratings            | : | 240VAC, 50Hz, 6A |
| Class of Equipment | : | Class II         |



Laboratory:  
TÜV SÜD PSB Pte. Ltd.  
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Singapore 118221

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**TÜV®**



LA-2007-0380-A  
LA-2007-0380-A-1  
LA-2007-0381-F  
LA-2007-0382-B  
LA-2007-0383-G  
LA-2007-0384-G  
LA-2007-0385-E  
LA-2007-0386-C

The results reported herein have been performed in accordance with the laboratory's terms of accreditation under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme. Tests/Calibrations marked "Not SAC-SINGLAS Accredited" in this Report are not included in the SAC-SINGLAS Accreditation Schedule for our laboratory.

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



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|                                                                                                                                                         |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| <b>TEST REPORT</b><br><b>IEC 60950-1 and/or EN 60950-1</b><br><b>Information technology equipment – Safety –</b><br><b>Part 1: General requirements</b> |                     |
| <b>Report reference No</b> .....                                                                                                                        | S08EEC01354/NCH1/CZ |
| <b>Tested by</b><br>(printed name and signature) .....                                                                                                  | Ng Chee Huat        |
| <b>Approved by</b><br>(printed name and signature) .....                                                                                                | Chen Zhuo           |
| <b>Date of issue</b> .....                                                                                                                              | 25 June 2008        |
| <b>Testing Laboratory Name</b> ..... TÜV SÜD PSB Pte Ltd                                                                                                |                     |
| <b>Address</b> ..... 1 Science Park Drive , Singapore 118221                                                                                            |                     |
| <b>Testing location</b> ..... Same as above                                                                                                             |                     |
| <b>Applicant's Name</b> ..... Cytech Technology Pte Ltd                                                                                                 |                     |
| <b>Address</b> ..... 55 Ubi Ave 1 #07-04,<br>Singapore 408935                                                                                           |                     |
| <b>Test specification</b>                                                                                                                               |                     |
| <b>Standard</b> ..... IEC 60950-1:2001 (1 <sup>st</sup> Edition) and EN 60950-1:2001+A11:2004                                                           |                     |
| <b>Non-standard test method</b> ..... N.A.                                                                                                              |                     |
| <b>Test item description</b> ..... Lighting Control Module                                                                                              |                     |
| <b>Trademark</b> ..... -                                                                                                                                |                     |
| <b>Manufacturer</b> ..... Cytech Technology Pte Ltd                                                                                                     |                     |
| <b>Model and/or type reference</b> ..... TWS01/02                                                                                                       |                     |
| <b>Serial number</b> ..... Not serialized                                                                                                               |                     |
| <b>Rating(s)</b> ..... 240VAC, 50Hz, 6A, Class II                                                                                                       |                     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



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Copy of marking plate

- See Appendix 2.

Summary of testing:

- All test results were found satisfactory in accordance with IEC 60950-1:2001 / EN 60950-1:2001 + A11: 2004

# Test Report No. S08EEC01354/NCH1/CZ

## dated 25 June 2008



PSB Singapore

### Particulars: test item vs. test requirements

Equipment mobility ..... : Equipment for building-in  
 Operating condition ..... : continuous  
 Mains supply tolerance (%) ..... : +6% , -10%  
 Tested for IT power systems ..... : N/A  
 IT testing, phase-phase voltage (V) ..... : N/A  
 Class of equipment ..... : Class II  
 Mass of equipment (kg) ..... : 0.09 kg  
 Protection against ingress of water ..... : To be evaluated in final end-product.

### Test case verdicts

Test case does not apply to the test object : N/A  
 Test item does meet the requirement ..... : P(ass)  
 Test item does not meet the requirement .. : F(ail)

### General remarks

The test results presented in this report relate only to the object(s) tested.  
 This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.  
 "(see appended table)" refers to a table appended to the report.

Throughout this report a point is used as the decimal separator.

### Comments:

**Remark 1:** The following contents are included in this test report :

- Test Report page 1 to 40
- Appendix 1 to 2

**Remark 2:** When installing to the final system, all requirements of IEC/EN 60950-1 standard must be fulfilled.

**Remark 3:** Manufacturer Name: Cytech Technology Pte Ltd  
 Manufacturer Address: 55 Ubi Ave 1 #07-04, Singapore 408935

Factory Name: Same as above.  
 Factory Address: Same as above.

### General product information:

The 2 way switching Lighting Control Module is tested with the Comfort control panel, which is provided by the applicant, to control a lighting circuit.

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                    |                 |         |
|--------------------------|--------------------|-----------------|---------|
| Clause                   | Requirement – Test | Result – Remark | Verdict |
| 1                        | GENERAL            |                 | P       |

|         |                                                                  |                                     |     |
|---------|------------------------------------------------------------------|-------------------------------------|-----|
| 1.5     | Components                                                       |                                     | P   |
| 1.5.1   | General                                                          | See below.                          | P   |
|         | Comply with IEC 60950 or relevant component standard             | (see appended table 1.5.1)          | P   |
| 1.5.2   | Evaluation and testing of components                             |                                     | P   |
| 1.5.3   | Thermal controls                                                 | No thermal control.                 | N/A |
| 1.5.4   | Transformers                                                     |                                     | N/A |
| 1.5.5   | Interconnecting cables                                           | Interconnecting cable not provided. | N/A |
| 1.5.6   | Capacitors in primary circuits .....                             | No such capacitors.                 | N/A |
| 1.5.7   | Double insulation or reinforced insulation bridged by components | No bridging components.             | N/A |
| 1.5.7.1 | General                                                          |                                     | N/A |
| 1.5.7.2 | Bridging capacitors                                              |                                     | N/A |
| 1.5.7.3 | Bridging resistors                                               |                                     | N/A |
| 1.5.7.4 | Accessible parts                                                 |                                     | N/A |
| 1.5.8   | Components in equipment for IT power systems                     |                                     | N/A |

|       |                                      |                                                                   |     |
|-------|--------------------------------------|-------------------------------------------------------------------|-----|
| 1.6   | Power interface                      |                                                                   | P   |
| 1.6.1 | AC power distribution systems        |                                                                   | N/A |
| 1.6.2 | Input current                        | (see appended table 1.6.2)                                        | P   |
| 1.6.3 | Voltage limit of hand-held equipment | This appliance is not a hand-held equipment.                      | N/A |
| 1.6.4 | Neutral conductor                    | Unit is meant for built-in. To be evaluated in final end-product. | N/A |

|       |                                                               |                                                |     |
|-------|---------------------------------------------------------------|------------------------------------------------|-----|
| 1.7   | Marking and instructions                                      |                                                | P   |
| 1.7.1 | Power rating                                                  |                                                | P   |
|       | Rated voltage(s) or voltage range(s) (V) .....                | 240VAC                                         | P   |
|       | Symbol for nature of supply, for d.c. only .....              | The equipment is for a.c. supply               | N/A |
|       | Rated frequency or rated frequency range (Hz) :               | 50Hz                                           | P   |
|       | Rated current (mA or A) .....                                 | 6A                                             | P   |
|       | Manufacturer's name or trademark or identification mark ..... | Manufacturer's name: Cytech Technology Pte Ltd | P   |
|       | Type/model or type reference .....                            | TWS01/02                                       | P   |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                                      |                                                                                                         |         |
|--------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------|
| Clause                   | Requirement – Test                                                                   | Result – Remark                                                                                         | Verdict |
|                          | Symbol for Class II equipment only .....                                             | Double square marked.                                                                                   | P       |
|                          | Other symbols .....                                                                  |                                                                                                         | N/A     |
|                          | Certification marks .....                                                            |                                                                                                         | N/A     |
| 1.7.2                    | Safety instructions                                                                  | Reviewed English language.                                                                              | P       |
| 1.7.3                    | Short duty cycles                                                                    | Continuous operation.                                                                                   | N/A     |
| 1.7.4                    | Supply voltage adjustment .....                                                      | No voltage selector.                                                                                    | N/A     |
|                          | Methods and means of adjustment; reference to installation instructions .....        |                                                                                                         | N/A     |
| 1.7.5                    | Power outlets on the equipment .....                                                 | No power outlets.                                                                                       | N/A     |
| 1.7.6                    | Fuse identification (marking, special fusing characteristics, cross-reference) ..... |                                                                                                         | N/A     |
| 1.7.7                    | Wiring terminals                                                                     |                                                                                                         | P       |
| 1.7.7.1                  | Protective earthing and bonding terminals .....                                      | No protective earthing & bonding terminals.                                                             | N/A     |
| 1.7.7.2                  | Terminal for a.c. mains supply conductors                                            |                                                                                                         | P       |
| 1.7.7.3                  | Terminals for d.c. mains supply conductors                                           |                                                                                                         | N/A     |
| 1.7.8                    | Controls and indicators                                                              | See below.                                                                                              | N/A     |
| 1.7.8.1                  | Identification, location and marking .....                                           | Unit is meant for built-in. To be evaluated in final end-product.                                       | N/A     |
| 1.7.8.2                  | Colours .....                                                                        |                                                                                                         | N/A     |
| 1.7.8.3                  | Symbols according to IEC 60417 .....                                                 | Unit is meant for built-in. To be evaluated in final end-product.                                       | N/A     |
| 1.7.8.4                  | Markings using figures .....                                                         | No indicators for different positions.                                                                  | N/A     |
| 1.7.9                    | Isolation of multiple power sources .....                                            | Only one power supply.                                                                                  | N/A     |
| 1.7.10                   | IT power distribution systems                                                        |                                                                                                         | N/A     |
| 1.7.11                   | Thermostats and other regulating devices                                             | No thermostats or other regulating devices.                                                             | N/A     |
| 1.7.12                   | Language(s) .....                                                                    | Markings/instructions are to be in the language suitable for the country of use. Reviewed only English. | —       |
| 1.7.13                   | Durability                                                                           | The marking withstands required tests.                                                                  | P       |
| 1.7.14                   | Removable parts                                                                      | No required markings placed on removable parts.                                                         | N/A     |
| 1.7.15                   | Replaceable batteries                                                                | No batteries.                                                                                           | N/A     |
|                          | Language(s) .....                                                                    |                                                                                                         | —       |
| 1.7.16                   | Operator access with a tool.....                                                     | No operator access area, require a tool to gain access.                                                 | N/A     |



**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                                                 |                                                              |         |
|--------------------------|-------------------------------------------------|--------------------------------------------------------------|---------|
| Clause                   | Requirement – Test                              | Result – Remark                                              | Verdict |
| 1.7.17                   | Equipment for restricted access locations.....: | Not intended for installation in restricted access location. | N/A     |

|         |                                                                                                    |                                                                                                            |     |
|---------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----|
| 2       | PROTECTION FROM HAZARDS                                                                            |                                                                                                            | P   |
| 2.1     | Protection from electric shock and energy hazards                                                  |                                                                                                            | P   |
| 2.1.1   | Protection in operator access areas                                                                | Unit is meant for built-in. To be evaluated in final end-product.                                          | N/A |
| 2.1.1.1 | Access to energized parts                                                                          |                                                                                                            | N/A |
|         | Test by inspection .....                                                                           |                                                                                                            | N/A |
|         | Test with test finger .....                                                                        |                                                                                                            | N/A |
|         | Test with test pin .....                                                                           |                                                                                                            | N/A |
|         | Test with test probe .....                                                                         |                                                                                                            | N/A |
| 2.1.1.2 | Battery compartments .....                                                                         | No battery compartments.                                                                                   | N/A |
| 2.1.1.3 | Access to ELV wiring                                                                               | Unit is meant for built-in and there is no operator accessible area. To be evaluated in final end-product. | N/A |
|         | Working voltage (V <sub>peak</sub> or V <sub>rms</sub> ); minimum distance (mm) through insulation |                                                                                                            | —   |
| 2.1.1.4 | Access to hazardous voltage circuit wiring                                                         | Unit is meant for built-in and there is no operator accessible area. To be evaluated in final end-product. | N/A |
| 2.1.1.5 | Energy hazards .....                                                                               | Unit is meant for built-in and there is no operator accessible area. To be evaluated in final end-product. | N/A |
| 2.1.1.6 | Manual controls                                                                                    | No manual controls.                                                                                        | N/A |
| 2.1.1.7 | Discharge of capacitors in equipment                                                               | No primary capacitors across the ac mains.                                                                 | N/A |
|         | Time-constant (s); measured voltage (V) .....                                                      |                                                                                                            | —   |
| 2.1.2   | Protection in service access areas                                                                 | Unit is meant for built-in. To be evaluated in final end-product.                                          | N/A |
| 2.1.3   | Protection in restricted access locations                                                          | Equipment not intended for use in restricted access location.                                              | N/A |

|       |                                            |                                                                   |   |
|-------|--------------------------------------------|-------------------------------------------------------------------|---|
| 2.2   | SELV circuits                              |                                                                   | P |
| 2.2.1 | General requirements                       |                                                                   | P |
| 2.2.2 | Voltages under normal conditions (V) ..... | Between any SELV circuits, 42.4V peak or 60Vdc were not exceeded. | P |



**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                     |                                                                                                                                                                                                                              |         |
|--------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Clause                   | Requirement – Test                                                  | Result – Remark                                                                                                                                                                                                              | Verdict |
| 2.2.3                    | Voltages under fault conditions (V) .....                           | Single fault did not cause excessive voltage in accessible SELV circuits. Limits of 71V peak or 120Vdc were not exceeded within 0.2 seconds and limits of 42.4V peak or 60Vdc were not exceeded for longer than 0.2 seconds. | P       |
| 2.2.3.1                  | Separation by double insulation or reinforced insulation (method 1) | SELV separated from primary by double or reinforce insulation.                                                                                                                                                               | P       |
| 2.2.3.2                  | Separation by earthed screen (method 2)                             | Not used.                                                                                                                                                                                                                    | N/A     |
| 2.2.3.3                  | Protection by earthing of the SELV circuit (method 3)               | Not used.                                                                                                                                                                                                                    | N/A     |
| 2.2.4                    | Connection of SELV circuits to other circuits .....                 | SELV circuit are only connected to other SELV circuit.                                                                                                                                                                       | P       |

|       |                                                          |                                 |     |
|-------|----------------------------------------------------------|---------------------------------|-----|
| 2.3   | TNV circuits                                             |                                 | N/A |
| 2.3.1 | Limits                                                   | No TNV circuit inside the unit. | N/A |
|       | Type of TNV circuits .....                               |                                 | —   |
| 2.3.2 | Separation from other circuits and from accessible parts |                                 | N/A |
|       | Insulation employed .....                                |                                 | —   |
| 2.3.3 | Separation from hazardous voltages                       |                                 | N/A |
|       | Insulation employed .....                                |                                 | —   |
| 2.3.4 | Connection of TNV circuits to other circuits             |                                 | N/A |
|       | Insulation employed .....                                |                                 | —   |
| 2.3.5 | Test for operating voltages generated externally         |                                 | N/A |

|       |                                                          |                         |     |
|-------|----------------------------------------------------------|-------------------------|-----|
| 2.4   | Limited current circuits                                 |                         | N/A |
| 2.4.1 | General requirements                                     | No LCC inside the unit. | N/A |
| 2.4.2 | Limit values                                             |                         | N/A |
|       | Frequency (Hz) .....                                     |                         | —   |
|       | Measured current (mA) .....                              |                         | —   |
|       | Measured voltage (V) .....                               |                         | —   |
|       | Measured capacitance (μF) .....                          |                         | —   |
| 2.4.3 | Connection of limited current circuits to other circuits |                         | N/A |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                                                                                                   |                 |         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause                   | Requirement – Test                                                                                                                                | Result – Remark | Verdict |
| 2.5                      | Limited power sources                                                                                                                             |                 | N/A     |
|                          | Inherently limited output                                                                                                                         |                 | N/A     |
|                          | Impedance limited output                                                                                                                          |                 | N/A     |
|                          | Overcurrent protective device limited output                                                                                                      |                 | N/A     |
|                          | Regulating network limited output under normal operating and single fault condition                                                               |                 | N/A     |
|                          | Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition |                 | N/A     |
|                          | Output voltage (V), output current (A), apparent power (VA) ..... :                                                                               |                 | —       |
|                          | Current rating of overcurrent protective device (A)                                                                                               |                 | —       |

|         |                                                                                        |                                                    |     |
|---------|----------------------------------------------------------------------------------------|----------------------------------------------------|-----|
| 2.6     | Provisions for earthing and bonding                                                    |                                                    | N/A |
| 2.6.1   | Protective earthing                                                                    | Unit is meant for built-in and class II equipment. | N/A |
| 2.6.2   | Functional earthing                                                                    |                                                    | N/A |
| 2.6.3   | Protective earthing and protective bonding conductors                                  |                                                    | N/A |
| 2.6.3.1 | General                                                                                |                                                    | N/A |
| 2.6.3.2 | Size of protective earthing conductors                                                 |                                                    | N/A |
|         | Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG ..... :                |                                                    | —   |
| 2.6.3.3 | Size of protective bonding conductors                                                  |                                                    | N/A |
|         | Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG ..... :                |                                                    | —   |
| 2.6.3.4 | Resistance (Ω) of earthing conductors and their terminations, test current (A) ..... : |                                                    | N/A |
| 2.6.3.5 | Colour of insulation..... :                                                            |                                                    | N/A |
| 2.6.4   | Terminals                                                                              |                                                    | N/A |
| 2.6.4.1 | General                                                                                |                                                    | N/A |
| 2.6.4.2 | Protective earthing and bonding terminals                                              |                                                    | N/A |
|         | Rated current (A), type and nominal thread diameter (mm) ..... :                       |                                                    | —   |
| 2.6.4.3 | Separation of the protective earthing conductor from protective bonding conductors     |                                                    | N/A |
| 2.6.5   | Integrity of protective earthing                                                       |                                                    | N/A |
| 2.6.5.1 | Interconnection of equipment                                                           |                                                    | N/A |
| 2.6.5.2 | Components in protective earthing conductors and protective bonding conductors         |                                                    | N/A |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                    |                 |         |
|--------------------------|--------------------------------------------------------------------|-----------------|---------|
| Clause                   | Requirement – Test                                                 | Result – Remark | Verdict |
| 2.6.5.3                  | Disconnection of protective earth                                  |                 | N/A     |
| 2.6.5.4                  | Parts that can be removed by an operator                           |                 | N/A     |
| 2.6.5.5                  | Parts removed during servicing                                     |                 | N/A     |
| 2.6.5.6                  | Corrosion resistance                                               |                 | N/A     |
| 2.6.5.7                  | Screws for protective bonding                                      |                 | N/A     |
| 2.6.5.8                  | Reliance on telecommunication network or cable distribution system |                 | N/A     |

|       |                                                              |                                                                   |     |
|-------|--------------------------------------------------------------|-------------------------------------------------------------------|-----|
| 2.7   | Overcurrent and earth fault protection in primary circuits   |                                                                   | N/A |
| 2.7.1 | Basic requirements                                           | Unit is meant for built-in. To be evaluated in final end-product. | N/A |
|       | Instructions when protection relies on building installation |                                                                   | N/A |
| 2.7.2 | Faults not covered in 5.3                                    |                                                                   | N/A |
| 2.7.3 | Short-circuit backup protection                              | Unit is meant for built-in. To be evaluated in final end-product. | N/A |
| 2.7.4 | Number and location of protective devices .....              | Unit is meant for built-in. To be evaluated in final end-product. | N/A |
| 2.7.5 | Protection by several devices                                |                                                                   | N/A |
| 2.7.6 | Warning to service personnel.....                            | Unit is meant for built-in. To be evaluated in final end-product. | N/A |

|         |                          |                                |     |
|---------|--------------------------|--------------------------------|-----|
| 2.8     | Safety interlocks        |                                | N/A |
| 2.8.1   | General principles       | No safety interlocks provided. | N/A |
| 2.8.2   | Protection requirements  |                                | N/A |
| 2.8.3   | Inadvertent reactivation |                                | N/A |
| 2.8.4   | Fail-safe operation      |                                | N/A |
| 2.8.5   | Moving parts             |                                | N/A |
| 2.8.6   | Overriding               |                                | N/A |
| 2.8.7   | Switches and relays      |                                | N/A |
| 2.8.7.1 | Contact gaps (mm) .....  |                                | N/A |
| 2.8.7.2 | Overload test            |                                | N/A |
| 2.8.7.3 | Endurance test           |                                | N/A |
| 2.8.7.4 | Electric strength test   |                                | N/A |
| 2.8.8   | Mechanical actuators     |                                | N/A |

|     |                       |  |   |
|-----|-----------------------|--|---|
| 2.9 | Electrical insulation |  | P |
|-----|-----------------------|--|---|

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                    |                                                                                                                  |         |
|--------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------|---------|
| Clause                   | Requirement – Test                 | Result – Remark                                                                                                  | Verdict |
| 2.9.1                    | Properties of insulating materials | Natural rubber, asbestos or hygroscopic materials are not used.                                                  | P       |
| 2.9.2                    | Humidity conditioning              | 48Hrs                                                                                                            | P       |
|                          | Humidity (%) .....                 | 93 %                                                                                                             | —       |
|                          | Temperature (°C) .....             | 25°C                                                                                                             | —       |
| 2.9.3                    | Grade of insulation                | Adequate levels of safety insulation is provided and maintained to comply with the requirement of this standard. | P       |

|          |                                                                              |                                         |     |
|----------|------------------------------------------------------------------------------|-----------------------------------------|-----|
| 2.10     | Clearances, creepage distances and distances through insulation              |                                         | P   |
| 2.10.1   | General                                                                      |                                         | P   |
| 2.10.2   | Determination of working voltage                                             |                                         | P   |
| 2.10.3   | Clearances                                                                   | See below.                              | P   |
| 2.10.3.1 | General                                                                      | See below.                              | P   |
| 2.10.3.2 | Clearances in primary circuits                                               | (see appended table 2.10.3 and 2.10.4). | P   |
| 2.10.3.3 | Clearances in secondary circuits                                             | (see appended table 2.10.3 and 2.10.4). | P   |
| 2.10.3.4 | Measurement of transient voltage levels                                      |                                         | N/A |
| 2.10.4   | Creepage distances                                                           | (see appended table 2.10.3 and 2.10.4). | P   |
|          | CTI tests .....                                                              |                                         | —   |
| 2.10.5   | Solid insulation                                                             |                                         | N/A |
| 2.10.5.1 | Minimum distance through insulation                                          |                                         | N/A |
| 2.10.5.2 | Thin sheet material                                                          |                                         | N/A |
|          | Number of layers (pcs) .....                                                 |                                         | —   |
|          | Electric strength test                                                       |                                         | —   |
| 2.10.5.3 | Printed boards                                                               |                                         | N/A |
|          | Distance through insulation                                                  |                                         | N/A |
|          | Electric strength test for thin sheet insulating material                    |                                         | —   |
|          | Number of layers (pcs) .....                                                 |                                         | N/A |
| 2.10.5.4 | Wound components                                                             |                                         | N/A |
|          | Number of layers (pcs) .....                                                 |                                         | N/A |
|          | Two wires in contact inside wound component; angle between 45° and 90° ..... |                                         | N/A |
| 2.10.6   | Coated printed boards                                                        |                                         | N/A |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                               |                 |         |
|--------------------------|---------------------------------------------------------------|-----------------|---------|
| Clause                   | Requirement – Test                                            | Result – Remark | Verdict |
| 2.10.6.1                 | General                                                       |                 | N/A     |
| 2.10.6.2                 | Sample preparation and preliminary inspection                 |                 | N/A     |
| 2.10.6.3                 | Thermal cycling                                               |                 | N/A     |
| 2.10.6.4                 | Thermal ageing (°C) ..... :                                   |                 | N/A     |
| 2.10.6.5                 | Electric strength test                                        |                 | —       |
| 2.10.6.6                 | Abrasion resistance test                                      |                 | N/A     |
|                          | Electric strength test                                        |                 | —       |
| 2.10.7                   | Enclosed and sealed parts ..... :                             |                 | N/A     |
|                          | Temperature $T_1 = T_2 + T_{ma} - T_{amb} + 10K$ (°C) ..... : |                 | N/A     |
| 2.10.8                   | Spacings filled by insulating compound ..... :                |                 | N/A     |
|                          | Electric strength test                                        |                 | —       |
| 2.10.9                   | Component external terminations                               |                 | N/A     |
| 2.10.10                  | Insulation with varying dimensions                            |                 | N/A     |

|        |                                                |                                                                                                   |     |
|--------|------------------------------------------------|---------------------------------------------------------------------------------------------------|-----|
| 3      | WIRING, CONNECTIONS AND SUPPLY                 |                                                                                                   | P   |
| 3.1    | General                                        |                                                                                                   | P   |
| 3.1.1  | Current rating and overcurrent protection      | Internal wiring and interconnecting cable are not provided. To be evaluated in final end-product. | N/A |
| 3.1.2  | Protection against mechanical damage           | Unit is meant for built-in. To be evaluated in final end-product.                                 | N/A |
| 3.1.3  | Securing of internal wiring                    | Unit is meant for built-in. To be evaluated in final end-product.                                 | N/A |
| 3.1.4  | Insulation of conductors                       | Internal wiring and interconnecting cable are not provided. To be evaluated in final end-product. | N/A |
| 3.1.5  | Beads and ceramic insulators                   | Not used.                                                                                         | N/A |
| 3.1.6  | Screws for electrical contact pressure         | Certified terminal blocks are used.                                                               | P   |
| 3.1.7  | Insulating materials in electrical connections | No contact pressure through insulating materials.                                                 | N/A |
| 3.1.8  | Self-tapping and spaced thread screws          | No space thread screws / thread-cutting screws used                                               | N/A |
| 3.1.9  | Termination of conductors                      |                                                                                                   | P   |
|        | 10 N pull test                                 |                                                                                                   | P   |
| 3.1.10 | Sleeving on wiring                             |                                                                                                   | N/A |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                    |                 |         |
|--------------------------|--------------------|-----------------|---------|
| Clause                   | Requirement – Test | Result – Remark | Verdict |

|         |                                                                       |                                                                                                         |     |
|---------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-----|
| 3.2     | Connection to an a.c. mains supply or a d.c. mains supply             |                                                                                                         | P   |
| 3.2.1   | Means of connection .....                                             | Terminals provided.                                                                                     | P   |
| 3.2.1.1 | Connection to an a.c. mains supply                                    |                                                                                                         | P   |
| 3.2.1.2 | Connection to a d.c. mains supply                                     |                                                                                                         | N/A |
| 3.2.2   | Multiple supply connections                                           | Only one supply connection.                                                                             | N/A |
| 3.2.3   | Permanently connected equipment                                       | Not permanently connected.                                                                              | N/A |
|         | Number of conductors, diameter (mm) of cable and conduits .....       |                                                                                                         | —   |
| 3.2.4   | Appliance inlets                                                      | Not used.                                                                                               | N/A |
| 3.2.5   | Power supply cords                                                    | Unit is meant for built-in and power supply cord is not provided. To be evaluated in final end-product. | N/A |
| 3.2.5.1 | AC power supply cords                                                 |                                                                                                         | N/A |
|         | Type.....                                                             |                                                                                                         | —   |
|         | Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG ..... |                                                                                                         | —   |
| 3.2.5.2 | DC power supply cords                                                 |                                                                                                         | N/A |
| 3.2.6   | Cord anchorages and strain relief                                     |                                                                                                         | N/A |
|         | Mass of equipment (kg), pull (N) .....                                |                                                                                                         | —   |
|         | Longitudinal displacement (mm) .....                                  |                                                                                                         | —   |
| 3.2.7   | Protection against mechanical damage                                  |                                                                                                         | N/A |
| 3.2.8   | Cord guards                                                           |                                                                                                         | N/A |
|         | D (mm); test mass (g) .....                                           |                                                                                                         | —   |
|         | Radius of curvature of cord (mm).....                                 |                                                                                                         | —   |
| 3.2.9   | Supply wiring space                                                   |                                                                                                         | N/A |

|       |                                                                                   |                                                                 |     |
|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------|-----|
| 3.3   | Wiring terminals for connection of external conductors                            |                                                                 | P   |
| 3.3.1 | Wiring terminals                                                                  | Terminals provided.                                             | P   |
| 3.3.2 | Connection of non-detachable power supply cords                                   |                                                                 | P   |
| 3.3.3 | Screw terminals                                                                   |                                                                 | N/A |
| 3.3.4 | Conductor sizes to be connected                                                   |                                                                 | N/A |
|       | Rated current (A), cord/cable type, cross-sectional area (mm <sup>2</sup> ) ..... | Cross sectional area of 0.75 mm <sup>2</sup> minimum to be used | —   |
| 3.3.5 | Wiring terminal sizes                                                             |                                                                 | N/A |
|       | Rated current (A), type and nominal thread diameter (mm) .....                    |                                                                 | —   |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                              |                                                                   |         |
|--------------------------|------------------------------|-------------------------------------------------------------------|---------|
| Clause                   | Requirement – Test           | Result – Remark                                                   | Verdict |
| 3.3.6                    | Wiring terminals design      |                                                                   | P       |
| 3.3.7                    | Grouping of wiring terminals | Unit is meant for built-in. To be evaluated in final end-product. | N/A     |
| 3.3.8                    | Stranded wire                |                                                                   | P       |

|        |                                           |                                                                   |     |
|--------|-------------------------------------------|-------------------------------------------------------------------|-----|
| 3.4    | Disconnection from the mains supply       |                                                                   | N/A |
| 3.4.1  | General requirement                       |                                                                   | N/A |
| 3.4.2  | Disconnect devices                        | Unit is meant for built-in. To be evaluated in final end-product. | N/A |
| 3.4.3  | Permanently connected equipment           | Unit is meant for built-in. To be evaluated in final end-product. | N/A |
| 3.4.4  | Parts which remain energized              |                                                                   | N/A |
| 3.4.5  | Switches in flexible cords                |                                                                   | N/A |
| 3.4.6  | Single-phase equipment and d.c. equipment | Unit is meant for built-in. To be evaluated in final end-product. | N/A |
| 3.4.7  | Three-phase equipment                     |                                                                   | N/A |
| 3.4.8  | Switches as disconnect devices            | Unit is meant for built-in. To be evaluated in final end-product. | N/A |
| 3.4.9  | Plugs as disconnect devices               |                                                                   | N/A |
| 3.4.10 | Interconnected equipment                  | No interconnection of hazardous voltages.                         | N/A |
| 3.4.11 | Multiple power sources                    | Only one power source.                                            | N/A |

|       |                                          |                        |     |
|-------|------------------------------------------|------------------------|-----|
| 3.5   | Interconnection of equipment             |                        | P   |
| 3.5.1 | General requirements                     | Considered.            | P   |
| 3.5.2 | Types of interconnection circuits .....  | SELV circuits.         | P   |
| 3.5.3 | ELV circuits as interconnection circuits | No ELV interconnection | N/A |

|     |                       |                             |     |
|-----|-----------------------|-----------------------------|-----|
| 4   | PHYSICAL REQUIREMENTS |                             | N/A |
| 4.1 | Stability             |                             | N/A |
|     | Angle of 10°          | Unit is meant for built-in. | N/A |
|     | Test: force (N) ..... |                             | N/A |

|       |                          |                             |     |
|-------|--------------------------|-----------------------------|-----|
| 4.2   | Mechanical strength      |                             | P   |
| 4.2.1 | General                  |                             | P   |
| 4.2.2 | Steady force test, 10 N  | No hazards.                 | P   |
| 4.2.3 | Steady force test, 30 N  |                             | N/A |
| 4.2.4 | Steady force test, 250 N | Unit is meant for built-in. | N/A |



**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                                                    |                                        |         |
|--------------------------|----------------------------------------------------|----------------------------------------|---------|
| Clause                   | Requirement – Test                                 | Result – Remark                        | Verdict |
| 4.2.5                    | Impact test                                        | Unit is meant for built-in.            | N/A     |
|                          | Fall test                                          | Unit is meant for built-in.            | N/A     |
|                          | Swing test                                         | Unit is meant for built-in.            | N/A     |
| 4.2.6                    | Drop test                                          | Unit is meant for built-in.            | N/A     |
| 4.2.7                    | Stress relief test                                 | Unit is meant for built-in.            | N/A     |
| 4.2.8                    | Cathode ray tubes                                  | No CRT provided.                       | N/A     |
|                          | Picture tube separately certified .....            |                                        | N/A     |
| 4.2.9                    | High pressure lamps                                | No high pressure lamp provided.        | N/A     |
| 4.2.10                   | Wall or ceiling mounted equipment; force (N) ..... | Not wall or ceiling mounted equipment. | N/A     |

|        |                                                                                     |                                                                                    |     |
|--------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----|
| 4.3    | Design and construction                                                             |                                                                                    | P   |
| 4.3.1  | Edges and corners                                                                   | Edges and corners are rounded and /or smoothed                                     | P   |
| 4.3.2  | Handles and manual controls; force (N)..... :                                       | No knobs, grips, handles or levers.                                                | N/A |
| 4.3.3  | Adjustable controls                                                                 | No hazardous adjustable control                                                    | N/A |
| 4.3.4  | Securing of parts                                                                   | No loosening of parts impairing creepage distance or clearance is likely to occur. | P   |
| 4.3.5  | Connection of plugs and sockets                                                     | No interchangeable plugs/sockets.                                                  | N/A |
| 4.3.6  | Direct plug-in equipment                                                            | Not direct plug-in equipment.                                                      | N/A |
|        | Dimensions (mm) of mains plug for direct plug-in .....                              |                                                                                    | N/A |
|        | Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N)..... : |                                                                                    | N/A |
| 4.3.7  | Heating elements in earthed equipment                                               | No heating elements.                                                               | N/A |
| 4.3.8  | Batteries                                                                           | No batteries.                                                                      | N/A |
| 4.3.9  | Oil and grease                                                                      | Insulation not exposed to oil or grease.                                           | N/A |
| 4.3.10 | Dust, powders, liquids and gases                                                    | Equipment does not produce dust, powders, liquids or gases.                        | N/A |
| 4.3.11 | Containers for liquids or gases                                                     | Equipment does not contain liquid or gases.                                        | N/A |
| 4.3.12 | Flammable liquids .....                                                             | No flammable liquid used.                                                          | N/A |
|        | Quantity of liquid (l) .....                                                        |                                                                                    | N/A |
|        | Flash point (°C) .....                                                              |                                                                                    | N/A |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                                                                         |                 |         |
|--------------------------|-------------------------------------------------------------------------|-----------------|---------|
| Clause                   | Requirement – Test                                                      | Result – Remark | Verdict |
| 4.3.13                   | Radiation; type of radiation .....                                      | No radiation.   | N/A     |
| 4.3.13.1                 | General                                                                 |                 | N/A     |
| 4.3.13.2                 | Ionizing radiation                                                      |                 | N/A     |
|                          | Measured radiation (pA/kg) .....                                        |                 | —       |
|                          | Measured high-voltage (kV) .....                                        |                 | —       |
|                          | Measured focus voltage (kV) .....                                       |                 | —       |
|                          | CRT markings .....                                                      |                 | —       |
| 4.3.13.3                 | Effect of ultraviolet (UV) radiation on materials                       |                 | N/A     |
|                          | Part, property, retention after test, flammability classification ..... |                 | N/A     |
| 4.3.13.4                 | Human exposure to ultraviolet (UV) radiation .....                      |                 | N/A     |
| 4.3.13.5                 | Laser (including LEDs)                                                  |                 | N/A     |
|                          | Laser class .....                                                       |                 | —       |
| 4.3.13.6                 | Other types .....                                                       |                 | N/A     |

|       |                                           |                           |     |
|-------|-------------------------------------------|---------------------------|-----|
| 4.4   | Protection against hazardous moving parts |                           | N/A |
| 4.4.1 | General                                   | No hazardous moving parts | N/A |
| 4.4.2 | Protection in operator access areas       | No hazardous moving parts | N/A |
| 4.4.3 | Protection in restricted access locations |                           | N/A |
| 4.4.4 | Protection in service access areas        | No hazardous moving parts | N/A |

|       |                                         |                          |     |
|-------|-----------------------------------------|--------------------------|-----|
| 4.5   | Thermal requirements                    |                          | P   |
| 4.5.1 | Maximum temperatures                    | (see appended table 4.5) | P   |
|       | Normal load condition per Annex L ..... |                          | N/A |
| 4.5.2 | Resistance to abnormal heat             |                          | N/A |

|       |                                       |                                                                   |     |
|-------|---------------------------------------|-------------------------------------------------------------------|-----|
| 4.6   | Openings in enclosures                |                                                                   | N/A |
| 4.6.1 | Top and side openings                 | Unit is meant for built-in. To be evaluated in final end-product. | N/A |
|       | Dimensions (mm) .....                 |                                                                   | —   |
| 4.6.2 | Bottoms of fire enclosures            | Unit is meant for built-in. To be evaluated in final end-product. | N/A |
|       | Construction of the bottom .....      |                                                                   | —   |
| 4.6.3 | Doors or covers in fire enclosures    | Unit is meant for built-in. To be evaluated in final end-product. | N/A |
| 4.6.4 | Openings in transportable equipment   |                                                                   | N/A |
| 4.6.5 | Adhesives for constructional purposes | Unit is meant for built-in. To be evaluated in final end-product. | N/A |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                                                  |                 |         |
|--------------------------|--------------------------------------------------|-----------------|---------|
| Clause                   | Requirement – Test                               | Result – Remark | Verdict |
|                          | Conditioning temperature (°C)/time (weeks) ..... |                 | —       |

|         |                                                                        |                                                                                                             |     |
|---------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----|
| 4.7     | Resistance to fire                                                     |                                                                                                             | P   |
| 4.7.1   | Reducing the risk of ignition and spread of flame                      | Appropriate use of components and suitable construction. Components are mounted on PWB rated V-1 or better. | P   |
|         | Method 1, selection and application of components wiring and materials | In accordance with method 1. See appended table.                                                            | P   |
|         | Method 2, application of all of simulated fault condition tests        |                                                                                                             | N/A |
| 4.7.2   | Conditions for a fire enclosure                                        | Unit is meant for built-in. Fire enclosure is to be provided by the host unit.                              | N/A |
| 4.7.2.1 | Parts requiring a fire enclosure                                       | Unit is meant for built-in. Fire enclosure is to be provided by the host unit.                              | N/A |
| 4.7.2.2 | Parts not requiring a fire enclosure                                   |                                                                                                             | N/A |
| 4.7.3   | Materials                                                              |                                                                                                             | P   |
| 4.7.3.1 | General                                                                | See below.                                                                                                  | P   |
| 4.7.3.2 | Materials for fire enclosures                                          | Unit is meant for built-in. Fire enclosure is to be provided by the host unit.                              | N/A |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures       |                                                                                                             | N/A |
| 4.7.3.4 | Materials for components and other parts inside fire enclosures        |                                                                                                             | N/A |
| 4.7.3.5 | Materials for air filter assemblies                                    | No air filter assemblies.                                                                                   | N/A |
| 4.7.3.6 | Materials used in high-voltage components                              | No high-voltage components.                                                                                 | N/A |

|       |                                                           |                                     |   |
|-------|-----------------------------------------------------------|-------------------------------------|---|
| 5     | ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS |                                     | P |
| 5.1   | Touch current and protective conductor current            |                                     | P |
| 5.1.1 | General                                                   |                                     | P |
| 5.1.2 | Equipment under test (EUT)                                | No multiple power source.           | P |
| 5.1.3 | Test circuit                                              |                                     | P |
| 5.1.4 | Application of measuring instrument                       | Measuring circuit in Annex D.1 used | P |
| 5.1.5 | Test procedure                                            |                                     | P |
| 5.1.6 | Test measurements                                         |                                     | P |
|       | Test voltage (V) .....                                    | 254.4                               | — |
|       | Measured touch current (mA) .....                         | 0.02mA                              | — |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                                                                          |                                     |         |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------|
| Clause                   | Requirement – Test                                                                                                       | Result – Remark                     | Verdict |
|                          | Max. allowed touch current (mA) ..... :                                                                                  | 0.25 mA r.m.s                       | —       |
|                          | Measured protective conductor current (mA) .... :                                                                        | Touch current does not exceed 3.5mA | —       |
|                          | Max. allowed protective conductor current (mA) :                                                                         | No TNV                              | —       |
| 5.1.7                    | Equipment with touch current exceeding 3.5 mA ..... :                                                                    |                                     | N/A     |
| 5.1.8                    | Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks | No TNV circuits                     | N/A     |
| 5.1.8.1                  | Limitation of the touch current to a telecommunication network and a cable distribution system                           | No TNV circuits                     | N/A     |
|                          | Test voltage (V) ..... :                                                                                                 |                                     | —       |
|                          | Measured touch current (mA) ..... :                                                                                      |                                     | —       |
|                          | Max. allowed touch current (mA) ..... :                                                                                  |                                     | —       |
| 5.1.8.2                  | Summation of touch currents from telecommunication networks..... :                                                       | No Telecommunication network        | N/A     |

|       |                   |                          |   |
|-------|-------------------|--------------------------|---|
| 5.2   | Electric strength |                          | P |
| 5.2.1 | General           | (see appended table 5.2) | P |
| 5.2.2 | Test procedure    | (see appended table 5.2) | P |

|       |                                                                 |                                                                                              |     |
|-------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----|
| 5.3   | Abnormal operating and fault conditions                         |                                                                                              | P   |
| 5.3.1 | Protection against overload and abnormal operation              | (See appended table 5.3)                                                                     | P   |
| 5.3.2 | Motors                                                          | No motors. (See appended Annex B)                                                            | N/A |
| 5.3.3 | Transformers                                                    |                                                                                              | N/A |
| 5.3.4 | Functional insulation.....:                                     | Method C)                                                                                    | P   |
| 5.3.5 | Electromechanical components                                    |                                                                                              | N/A |
| 5.3.6 | Simulation of faults                                            | (See appended table 5.3)                                                                     | P   |
| 5.3.7 | Unattended equipment                                            | Thermostats, temperature limiters and thermal cut-offs are not used.                         | N/A |
| 5.3.8 | Compliance criteria for abnormal operating and fault conditions | No fire, emission of molten metal occurred and no deformation of enclosure during the tests. | P   |

|   |                                          |  |     |
|---|------------------------------------------|--|-----|
| 6 | CONNECTION TO TELECOMMUNICATION NETWORKS |  | N/A |
|---|------------------------------------------|--|-----|

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                                                                                                         |                                                     |         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|---------|
| Clause                   | Requirement – Test                                                                                                                                      | Result – Remark                                     | Verdict |
| 6.1                      | Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment           |                                                     | N/A     |
| 6.1.1                    | Protection from hazardous voltages                                                                                                                      |                                                     | N/A     |
| 6.1.2                    | Separation of the telecommunication network from earth                                                                                                  |                                                     | N/A     |
| 6.1.2.1                  | Requirements                                                                                                                                            | Not direct connection to TELECOMMUNICATION NETWORK. | N/A     |
|                          | Test voltage (V) .....                                                                                                                                  |                                                     | —       |
|                          | Current in the test circuit (mA) .....                                                                                                                  |                                                     | —       |
| 6.1.2.2                  | Exclusions .....                                                                                                                                        |                                                     | N/A     |
| 6.2                      | Protection of equipment users from overvoltages on telecommunication networks                                                                           |                                                     | N/A     |
| 6.2.1                    | Separation requirements                                                                                                                                 | Not direct connection to TELECOMMUNICATION NETWORK. | N/A     |
| 6.2.2                    | Electric strength test procedure                                                                                                                        |                                                     | N/A     |
| 6.2.2.1                  | Impulse test                                                                                                                                            |                                                     | N/A     |
| 6.2.2.2                  | Steady-state test                                                                                                                                       |                                                     | N/A     |
| 6.2.2.3                  | Compliance criteria                                                                                                                                     |                                                     | N/A     |
| 6.3                      | Protection of the telecommunication wiring system from overheating                                                                                      |                                                     | N/A     |
|                          | Max. output current (A).....                                                                                                                            |                                                     | —       |
|                          | Current limiting method .....                                                                                                                           |                                                     | —       |
| 7                        | CONNECTION TO CABLE DISTRIBUTION SYSTEMS                                                                                                                |                                                     | N/A     |
| 7.1                      | Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment | No cable distribution systems inside the equipment. | N/A     |
| 7.2                      | Protection of equipment users from overvoltages on the cable distribution system                                                                        |                                                     | N/A     |
| 7.3                      | Insulation between primary circuits and cable distribution systems                                                                                      |                                                     | N/A     |
| 7.3.1                    | General                                                                                                                                                 |                                                     | N/A     |
| 7.3.2                    | Voltage surge test                                                                                                                                      |                                                     | N/A     |
| 7.3.3                    | Impulse test                                                                                                                                            |                                                     | N/A     |
| A                        | ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE                                                                                                          |                                                     | N/A     |
| A.1                      | Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)               |                                                     | N/A     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                              |                 |         |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                           | Result – Remark | Verdict |
| A.1.1                    | Samples.....:                                                                                                                                                                                |                 | —       |
|                          | Wall thickness (mm) .....                                                                                                                                                                    |                 | —       |
| A.1.2                    | Conditioning of samples; temperature (°C) .....                                                                                                                                              |                 | N/A     |
| A.1.3                    | Mounting of samples .....                                                                                                                                                                    |                 | N/A     |
| A.1.4                    | Test flame (see IEC 60695-11-3)                                                                                                                                                              |                 | N/A     |
|                          | Flame A, B, C or D .....                                                                                                                                                                     |                 | N/A     |
| A.1.5                    | Test procedure                                                                                                                                                                               |                 | N/A     |
| A.1.6                    | Compliance criteria                                                                                                                                                                          |                 | —       |
|                          | Sample 1 burning time (s) .....                                                                                                                                                              |                 | —       |
|                          | Sample 2 burning time (s) .....                                                                                                                                                              |                 | —       |
|                          | Sample 3 burning time (s) .....                                                                                                                                                              |                 | —       |
| A.2                      | Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4) |                 | N/A     |
| A.2.1                    | Samples, material.....:                                                                                                                                                                      |                 | —       |
|                          | Wall thickness (mm) .....                                                                                                                                                                    |                 | —       |
| A.2.2                    | Conditioning of samples                                                                                                                                                                      |                 | N/A     |
| A.2.3                    | Mounting of samples .....                                                                                                                                                                    |                 | N/A     |
| A.2.4                    | Test flame (see IEC 60695-11-4)                                                                                                                                                              |                 | N/A     |
|                          | Flame A, B or C .....                                                                                                                                                                        |                 | —       |
| A.2.5                    | Test procedure                                                                                                                                                                               |                 | N/A     |
| A.2.6                    | Compliance criteria                                                                                                                                                                          |                 | N/A     |
|                          | Sample 1 burning time (s) .....                                                                                                                                                              |                 | —       |
|                          | Sample 2 burning time (s) .....                                                                                                                                                              |                 | —       |
|                          | Sample 3 burning time (s) .....                                                                                                                                                              |                 | —       |
| A.2.7                    | Alternative test acc. To IEC 60695-2-2, cl. 4 and 8                                                                                                                                          |                 | N/A     |
|                          | Sample 1 burning time (s) .....                                                                                                                                                              |                 | —       |
|                          | Sample 2 burning time (s) .....                                                                                                                                                              |                 | —       |
|                          | Sample 3 burning time (s) .....                                                                                                                                                              |                 | —       |
| A.3                      | Hot flaming oil test (see 4.6.2)                                                                                                                                                             |                 | N/A     |
| A.3.1                    | Mounting of samples                                                                                                                                                                          |                 | N/A     |
| A.3.2                    | Test procedure                                                                                                                                                                               |                 | N/A     |
| A.3.3                    | Compliance criterion                                                                                                                                                                         |                 | N/A     |
| B                        | ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)                                                                                                                       |                 | N/A     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                  |                 |         |
|--------------------------|------------------------------------------------------------------|-----------------|---------|
| Clause                   | Requirement – Test                                               | Result – Remark | Verdict |
| B.1                      | General requirements                                             |                 | N/A     |
|                          | Position .....                                                   |                 | —       |
|                          | Manufacturer .....                                               |                 | —       |
|                          | Type .....                                                       |                 | —       |
|                          | Rated values .....                                               |                 | —       |
| B.2                      | Test conditions                                                  |                 | N/A     |
| B.3                      | Maximum temperatures                                             |                 | N/A     |
| B.4                      | Running overload test                                            |                 | N/A     |
| B.5                      | Locked-rotor overload test                                       |                 | N/A     |
|                          | Test duration (days) .....                                       |                 | —       |
|                          | Electric strength test: test voltage (V) .....                   |                 | —       |
| B.6                      | Running overload test for d.c. motors in secondary circuits      |                 | N/A     |
| B.7                      | Locked-rotor overload test for d.c. motors in secondary circuits |                 | N/A     |
| B.7.1                    | Test procedure                                                   |                 | N/A     |
| B.7.2                    | Alternative test procedure; test time (h) .....                  |                 | N/A     |
| B.7.3                    | Electric strength test                                           |                 | N/A     |
| B.8                      | Test for motors with capacitors                                  |                 | N/A     |
| B.9                      | Test for three-phase motors                                      |                 | N/A     |
| B.10                     | Test for series motors                                           |                 | N/A     |
|                          | Operating voltage (V) .....                                      |                 | —       |

|     |                                                |  |     |
|-----|------------------------------------------------|--|-----|
| C   | ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)    |  | N/A |
|     | Position .....                                 |  | —   |
|     | Manufacturer .....                             |  | —   |
|     | Type .....                                     |  | —   |
|     | Rated values .....                             |  | —   |
|     | Method of protection.....                      |  | —   |
| C.1 | Overload test                                  |  | N/A |
| C.2 | Insulation                                     |  | N/A |
|     | Protection from displacement of windings ..... |  | N/A |

|     |                                                                    |  |     |
|-----|--------------------------------------------------------------------|--|-----|
| D   | ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4) |  | P   |
| D.1 | Measuring instrument                                               |  | P   |
| D.2 | Alternative measuring instrument                                   |  | N/A |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                                                         |                 |         |
|--------------------------|---------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause                   | Requirement – Test                                                                                      | Result – Remark | Verdict |
| E                        | ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)                                                     |                 | N/A     |
| F                        | ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)                                    |                 | N/A     |
| G                        | ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES                                          |                 | N/A     |
| G.1                      | Summary of the procedure for determining minimum clearances                                             |                 | N/A     |
| G.2                      | Determination of mains transient voltage (V) .....                                                      |                 | N/A     |
| G.2.1                    | AC mains supply                                                                                         |                 | N/A     |
| G.2.2                    | DC mains supply                                                                                         |                 | N/A     |
| G.3                      | Determination of telecommunication network transient voltage (V) .....                                  |                 | N/A     |
| G.4                      | Determination of required withstand voltage (V) ..                                                      |                 | N/A     |
| G.5                      | Measurement of transient levels (V) .....                                                               |                 | N/A     |
| G.6                      | Determination of minimum clearances.....                                                                |                 | N/A     |
| H                        | ANNEX H, IONIZING RADIATION (see 4.3.13)                                                                |                 | N/A     |
| J                        | ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)                                              |                 | N/A     |
|                          | Metal used .....                                                                                        |                 | —       |
| K                        | ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)                                                         |                 | N/A     |
| K.1                      | Making and breaking capacity                                                                            |                 | N/A     |
| K.2                      | Thermostat reliability; operating voltage (V) .....                                                     |                 | N/A     |
| K.3                      | Thermostat endurance test; operating voltage (V) .....                                                  |                 | N/A     |
| K.4                      | Temperature limiter endurance; operating voltage (V) .....                                              |                 | N/A     |
| K.5                      | Thermal cut-out reliability                                                                             |                 | N/A     |
| K.6                      | Stability of operation                                                                                  |                 | N/A     |
| L                        | ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1) |                 | N/A     |
| L.1                      | Typewriters                                                                                             |                 | N/A     |
| L.2                      | Adding machines and cash registers                                                                      |                 | N/A     |
| L.3                      | Erasers                                                                                                 |                 | N/A     |



**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                               |                 |         |
|--------------------------|-------------------------------|-----------------|---------|
| Clause                   | Requirement – Test            | Result – Remark | Verdict |
| L.4                      | Pencil sharpeners             |                 | N/A     |
| L.5                      | Duplicators and copy machines |                 | N/A     |
| L.6                      | Motor-operated files          |                 | N/A     |
| L.7                      | Other business equipment      |                 | N/A     |

|         |                                                                 |  |     |
|---------|-----------------------------------------------------------------|--|-----|
| M       | ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)     |  | N/A |
| M.1     | Introduction                                                    |  | N/A |
| M.2     | Method A                                                        |  | N/A |
| M.3     | Method B                                                        |  | N/A |
| M.3.1   | Ringling signal                                                 |  | N/A |
| M.3.1.1 | Frequency (Hz) .....                                            |  | —   |
| M.3.1.2 | Voltage (V) .....                                               |  | —   |
| M.3.1.3 | Cadence; time (s), voltage (V) .....                            |  | —   |
| M.3.1.4 | Single fault current (mA).....                                  |  | —   |
| M.3.2   | Tripping device and monitoring voltage.....                     |  | N/A |
| M.3.2.1 | Conditions for use of a tripping device or a monitoring voltage |  | N/A |
| M.3.2.2 | Tripping device                                                 |  | N/A |
| M.3.2.3 | Monitoring voltage (V) .....                                    |  | N/A |

|     |                                                                                |  |     |
|-----|--------------------------------------------------------------------------------|--|-----|
| N   | ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5) |  | N/A |
| N.1 | ITU-T impulse test generators                                                  |  | N/A |
| N.2 | IEC 60065 impulse test generator                                               |  | N/A |

|   |                               |  |     |
|---|-------------------------------|--|-----|
| P | ANNEX P, NORMATIVE REFERENCES |  | N/A |
|---|-------------------------------|--|-----|

|   |                       |  |     |
|---|-----------------------|--|-----|
| Q | ANNEX Q, BIBLIOGRAPHY |  | N/A |
|---|-----------------------|--|-----|

|     |                                                                                 |  |     |
|-----|---------------------------------------------------------------------------------|--|-----|
| R   | ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES                |  | N/A |
| R.1 | Minimum separation distances for unpopulated coated printed boards (see 2.10.6) |  | N/A |
| R.2 | Reduced clearances (see 2.10.3)                                                 |  | N/A |

|     |                                                      |  |     |
|-----|------------------------------------------------------|--|-----|
| S   | ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3) |  | N/A |
| S.1 | Test equipment                                       |  | N/A |
| S.2 | Test procedure                                       |  | N/A |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                         |                 |         |
|--------------------------|-------------------------------------------------------------------------|-----------------|---------|
| Clause                   | Requirement – Test                                                      | Result – Remark | Verdict |
| S.3                      | Examples of waveforms during impulse testing                            |                 | N/A     |
| T                        | ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER<br>(see 1.1.2) |                 | N/A     |
|                          |                                                                         |                 | —       |

|   |                                                                                        |  |     |
|---|----------------------------------------------------------------------------------------|--|-----|
| U | ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4) |  | N/A |
|   |                                                                                        |  | —   |

|     |                                                    |  |     |
|-----|----------------------------------------------------|--|-----|
| V   | ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1) |  | N/A |
| V.1 | Introduction                                       |  | N/A |
| V.2 | TN power distribution systems                      |  | N/A |

|       |                                              |  |     |
|-------|----------------------------------------------|--|-----|
| W     | ANNEX W, SUMMATION OF TOUCH CURRENTS         |  | N/A |
| W.1   | Touch current from electronic circuits       |  | N/A |
| W.1.2 | Earthed circuits                             |  | N/A |
| W.2   | Interconnection of several equipments        |  | N/A |
| W.2.1 | Isolation                                    |  | N/A |
| W.2.2 | Common return, isolated from earth           |  | N/A |
| W.2.3 | Common return, connected to protective earth |  | N/A |

|     |                                                                          |  |     |
|-----|--------------------------------------------------------------------------|--|-----|
| X   | ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS<br>(see clause C.1) |  | N/A |
| X.1 | Determination of maximum input current                                   |  | N/A |
| X.2 | Overload test procedure                                                  |  | N/A |

|     |                                                             |  |     |
|-----|-------------------------------------------------------------|--|-----|
| Y   | ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3) |  | N/A |
| Y.1 | Test apparatus .....                                        |  | N/A |
| Y.2 | Mounting of test samples .....                              |  | N/A |
| Y.3 | Carbon-arc light-exposure apparatus .....                   |  | N/A |
| Y.4 | Xenon-arc light exposure apparatus .....                    |  | N/A |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                              |         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|---------|
| Clause                                                                                                                                                      | Requirement – Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Result – Remark                                              | Verdict |
| CENELEC COMMON MODIFICATIONS [C],<br>SPECIAL NATIONAL CONDITIONS [S] AND A-DEVIATIONS (NATIONAL DEVIATIONS) [A]<br>(EN 60950-1:2001, Annex ZB and Annex ZC) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                              | P       |
| General                                                                                                                                                     | <p>C: Delete all the “country” notes in the reference document according to the following list:</p> <p>1.1.5 Note 2    1.5.8 Note 2    1.6.1 Note<br/> 1.7.2 Note 4    1.7.12 Note 2    2.6 Note<br/> 2.2.3 Note    2.2.4 Note    2.3.2 Note 2, 7, 8<br/> 2.3.3 Note 1, 2    2.3.4 Note 2,3    2.7.1 Note<br/> 2.10.3.1 Note 4    3.2.1.1 Note    3.2.3 Note 1, 2<br/> 3.2.5.1 Note 2    4.3.6 Note 1,2    4.7.2.2 Note<br/> 4.7.3.1 Note 2    6.1.2.1 Note    6.1.2.2 Note<br/> 6.2.2 Note    6.2.2.1 Note 2    6.2.2.2 Note<br/> 7 Note 4    7.1 Note<br/> G2.1 Note 1, 2 Annex H    Note 2</p> |                                                              | P       |
| 1.2.4.1                                                                                                                                                     | S (DK): Certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                              | N/A     |
| 1.5.1                                                                                                                                                       | A (SE, Ordinance 1990:944 and CH, Ordinance on environmentally hazardous substances SR 814.013, Annex 3.2, Mercury): Add NOTE – Switches containing mercury such as thermostats, relays and level controllers are not allowed.                                                                                                                                                                                                                                                                                                                                                                    | There are no components containing mercury in the equipment. | N/A     |
| 1.5.8                                                                                                                                                       | S (NO): Due to the IT power system used (see annex V, Fig. V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                              | N/A     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          |         |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Result – Remark          | Verdict |
| 1.7.2                    | S (FI, NO, SE): CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.<br><br>The marking text in the applicable countries shall be as follows:                                                                                                                                                                                                                                                                                      |                          | N/A     |
|                          | FI: "Laite on liitettävä suojamaadoitus-koskettimilla varustettuun pistorasiaan"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                          | N/A     |
|                          | NO: "Apparatet må tilkoples jordet stikkontakt"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                          | N/A     |
|                          | SE: "Apparaten skall anslutas till jordat uttag"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                          | N/A     |
|                          | A (DK, Heavy Current Regulations): Supply cords of class I equipment, which is delivered without a plug, must be provided with a visible tag with the following text:<br><br>Vigtigt!<br>Lederen med grøn/gul isolation må kun tilsluttes en klemme mærket<br> eller <br>If essential for the safety of the equipment, the tag must in addition be provided with a diagram which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende installationsvejledning." |                          | N/A     |
| 1.7.5                    | S (DK): Socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For stationary equipment the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.                                                                                                                                                                                                                                                                                                                                                                                            | No Mains socket-outlets. | N/A     |
| 1.7.5                    | A (DK, Heavy Current Regulations): CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | No Mains socket-outlets. | N/A     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                         |         |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Result – Remark                                                                         | Verdict |
| 1.7.12                   | <p>A (DE, Gesetz über technische Arbeitsmittel (Gerätesicherheitsgesetz) [Law on technical labour equipment {Equipment safety law}], of 23<sup>rd</sup> October 1992, Article 3, 3<sup>rd</sup> paragraph, 2<sup>nd</sup> sentence, together with the “Allgemeine Verwaltungsvorschrift zur Durchführung des Zweiten Abschnitts des Gerätesicherheitsgesetzes” [General administrative regulation on the execution of the Second Section of the Equipment safety law], of 10<sup>th</sup> January 1996, article 2, 4<sup>th</sup> paragraph item 2):</p> <p>Directions for use with rules to prevent certain hazards for (among others) maintenance of the technical labour equipment, also for imported technical labour equipment shall be written in the German language.</p> <p>NOTE: Of this requirement, rules for use even only by service personnel are not exempted.</p>                                                                                                                                                                                                                                                   | German manual and instructions are to be provided to the user during national approval. | N/A     |
| 1.7.15                   | <p>A (CH, Ordinance on environmentally hazardous substances SR 814.013):<br/>Annex 4.10 of SR 814.013 applies for batteries.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                         | N/A     |
|                          | <p>A (DE, Regulation on protection against hazards by X-ray, of 8<sup>th</sup> January 1987, Article 5 [Operation of X-ray emission source], clauses 1 to 4):</p> <p>a) A licence is required by those who operate an X-ray emission source.</p> <p>b) A licence in accordance with Cl. 1 is not required by those who operate an X-ray emission source on which the electron acceleration voltage does not exceed 20 kV if</p> <p>1) the local dose rate at a distance of 0,1 m from the surface does not exceed 1 µSv/h and</p> <p>2) it is adequately indicated on the X-ray emission source that</p> <p>i) X-rays are generated and</p> <p>ii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>c) A licence in accordance with Cl. 1 is also not required by persons who operate an X-ray emission source on which the electron acceleration voltage exceeds 20 kV if</p> <p>1) the X-ray emission source has been granted a type approval and</p> <p>2) it is adequately indicated on the X-ray emission source that</p> <p>i) X-rays are generated</p> | This national deviation has been deleted under EN60950-1/A11:2004                       | N/A     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |         |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Result – Remark  | Verdict |
|                          | <p>ii) the device stipulated by the manufacturer or importer guarantees that the maximum permissible local dose rate in accordance with the type approval is not exceeded and</p> <p>iii) the electron acceleration voltage must not exceed the maximum value stipulated by the manufacturer or importer.</p> <p>d) Furthermore, a licence in accordance with Cl. 1 is also not required by persons who operate X-ray emission sources on which the electron acceleration voltage does not exceed 30 kV if</p> <p>1) the X-rays are generated only by intrinsically safe CRTs complying with Enclosure III, No. 6,</p> <p>2) the values stipulated in accordance with Enclosure III, No. 6.2 are limited by technical measures and specified in the device and</p> <p>3) it is adequately indicated on the X-ray emission source that the X-rays generated are adequately screened by the intrinsically safe CRT.</p> |                  |         |
| 2.2.4                    | S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  | N/A     |
| 2.3.2                    | S (NO): Requirements according to this annex, 6.1.2.1 apply.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | No TNV circuits. | N/A     |
| 2.3.3 and 2.3.4          | S (NO): Requirements according to this annex, 1.7.2 and 6.1.2.1 apply.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | No TNV circuits. | N/A     |
| 2.6.3.3                  | S (GB): The current rating of the circuit shall be taken as 13 A, not 16 A.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  | N/A     |
| 2.7.1                    | <p>C: Replace the subclause as follows:</p> <p>Basic requirements</p> <p>To protect against excessive current, short-circuits and earth faults in primary circuits, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p>                                                                                                                                                     |                  | N/A     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                             |         |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Result – Remark                                                                                             | Verdict |
|                          | <p>c) it is permitted for pluggable equipment type B or permanently connected equipment, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for pluggable equipment type A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>                                                                                                                                                                                                      |                                                                                                             |         |
|                          | S (GB): To protect against excessive currents and short-circuits in the primary circuit of direct plug-in equipment, protective device shall be included as integral parts of the direct plug-in equipment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | The device is not direct plug-in equipment.                                                                 | N/A     |
| 2.7.2                    | C: Void.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                             | N/A     |
| 2.10.2                   | C: Replace in the first line "(see also 1.4.7)" by "(see also 1.4.8)".                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Replaced                                                                                                    | P       |
| 2.10.3.1                 | S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the a.c. mains supply voltage is considered to be equal to the line-to-line voltage and will remain at 230 V in case of a single earth fault                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                             | N/A     |
| 3.2.1.1                  | <p>S (CH): Supply cords of equipment having a rated current not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <p>SEV 6532-2.1991, Plug type 15, 3P+N+PE 250/400 V, 10 A</p> <p>SEV 6533-2.1991, Plug type 11, L+N 250 V, 10 A</p> <p>SEV 6534-2.1991, Plug type 12, L+N+PE 250 V, 10 A</p> <p>In general, EN 60309 applies for plugs for currents exceeding 10A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <p>SEV 5932-2.1998, Plug type 25, 3L+N+PE 230/400 V, 16 A</p> <p>SEV 5933-2.1998, Plug type 21, L+N 250 V, 16 A</p> <p>SEV 5934-2.1998, Plug type 23, L+N+PE 250 V, 16 A</p> | A plug, separately certified according to the Swiss requirement is to be used when supplied to Switzerland. | N/A     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                  |         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Result – Remark                                                                                                  | Verdict |
|                          | <p>S (DK): Supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>Class I equipment provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If ply-phase equipment and single-phase equipment having a rated current exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p> | A plug, separately certified according to the Danish requirement is to be used when supplied to Denmark.         | N/A     |
|                          | <p>S (ES): Supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>Class I equipment provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>   | A plug, separately certified according to the Spanish requirement is to be used when supplied to Spain.          | N/A     |
|                          | <p>S (GB): Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 – The Plugs and Socket etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE – 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>                                                                                                                                                                                                | A plug, separately certified according to the British requirement is to be used when supplied to United Kingdom. | N/A     |



**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                         |         |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Result – Remark                                                                                         | Verdict |
|                          | S (IE): Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 – National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.                                                                                              | A plug, separately certified according to the Irish requirement is to be used when supplied to Ireland. | N/A     |
| 3.2.3                    | C: Delete Note 1 and in Table 3A, delete the conduit sizes in parentheses.                                                                                                                                                                                                                                                                                                                                                                                                                               | Deleted (not permanently connected equipment)                                                           | N/A     |
| 3.2.5.1                  | C: Replace<br>“60245 IEC 53” by “H05 RR-F”;<br>“60227 IEC 52” by “H03 VV-F or H03 VVH2-F”;<br>“60227 IEC 53” by “H05 VV-F or H05 VVH2-F2”.<br>In Table 3B, replace the first four lines by the following:<br>Up to and including 6 0,751)<br>Over 6 up to and including 10 (0,75)2)1,0<br>Over 10 up to and including 16 (1,0)3) 1,5<br>In the Conditions applicable to Table 3B delete the words “in some countries” in condition 1).<br>In Note 1, applicable to Table 3B, delete the second sentence. | Replaced                                                                                                | N/A     |
| 3.2.5.1                  | S (GB): A power supply cord with conductor of 1,25 mm <sup>2</sup> is allowed for equipment with a rated current over 10 A and up to and including 13 A.                                                                                                                                                                                                                                                                                                                                                 | Rated current not over 10A.                                                                             | N/A     |
| 3.3.4                    | C: In table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:<br>“Over 10 up to and including 16   1,5 to 2,5   1,5 to 4”<br>Delete the fifth line: conductor sizes for 13 to 16 A.                                                                                                                                                                                                                                                                            | Rated current not over 10A.                                                                             | N/A     |
| 3.3.4                    | S (GB): The range of conductor sizes of flexible cords to be accepted by terminals for equipment with A RATED CURRENT of over 10 A up to and including 13 A is:<br>- 1,25 mm <sup>2</sup> to 1,5 mm <sup>2</sup> nominal cross-sectional area.                                                                                                                                                                                                                                                           | Rated current not over 10A.                                                                             | N/A     |
| 4.3.6                    | S (GB): The torque test is performed using a socket outlet complying with BS 1363 and the plug part OF DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C.                                                                                                                                                                                                         | Not direct plug-in equipment                                                                            | N/A     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Result – Remark              | Verdict |
|                          | S (IE): DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 – National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Not direct plug-in equipment | N/A     |
| 4.3.13.6                 | C: Add the following note:<br><br>NOTE Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this recommendation are currently under development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Added                        | N/A     |
| 6.1.2.1                  | S (FI, NO, SE): Add the following text between the first and second paragraph:<br><br>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either<br><br>- two layers of thin sheet material, each of which shall pass the electric strength test below, or<br><br>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.<br><br>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES AND CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition<br><br>- passes the tests and inspection criteria of 2.10.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.7 shall be performed using 1,5 kV), and<br><br>- is subject to ROUTING TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.<br><br>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.<br><br>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:<br><br>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in |                              | N/A     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                         |         |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Result – Remark                         | Verdict |
| 6.1.2.1<br>– cont'd –    | EN 60950:2000, 6.2.2.1;<br>- the additional testing shall be performed on all the test specimens as described in EN 132400;<br>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.                                                                                                                                                                                                                                                                                                                          |                                         |         |
| 6.1.2.2                  | S (FI, NO, SE): The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a service person.                                                                                                                                                |                                         | N/A     |
| 7.1                      | S (FI, NO, SE): Requirements according to this annex, 6.1.2.1 and 6.1.2.2 apply with the term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.                                                                                                                                                                                                                                                                                                                                                                                                              |                                         | N/A     |
| G.2.1                    | S (NO): Due to the IT power distribution system used (see annex V, Fig. V.7), the A.C. MAINS SUPPLY voltage is considered to be equal to the line-to-line voltage, and will remain at 230 V in case of a single earth fault.                                                                                                                                                                                                                                                                                                                                                                        |                                         | N/A     |
| Annex H                  | C: Replace the last paragraph of this annex by:<br>At any point 10 cm from the surface of the operator access area, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see note). Account is taken of the background level.<br><br>Replace the notes as follows:<br><br>NOTE These values appear in Directive 96/29/Euratom.<br><br>Delete Note 2.                                                                                                                                                                                                                                                  | The unit does not emit X-ray radiation. | N/A     |
| Annex P                  | C: Replace the text of this annex by:<br>See annex ZA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Replaced                                | P       |
| Annex Q                  | C: Replace the title of IEC 61032 by "Protection of persons and equipment by enclosures – Probes for verification".<br><br>Add the following notes for the standards indicated:<br><br>IEC 60127 NOTE Harmonized as EN 60127 (Series) (not modified)<br>IEC 60269-2-1 NOTE Harmonized as HD 630.2.1 S4:2000 (modified)<br>IEC 60529 NOTE Harmonized as EN 60529:1991 (not modified)<br>IEC 61032 NOTE Harmonized as EN 61032:1998 (not modified)<br>IEC 61140 NOTE Harmonized as EN 61140:2001 (not modified)<br>ITU-T Recommendation K.31<br>NOTE in Europe, the suggested document is EN 50083-1. |                                         | P       |

# Test Report No. S08EEC01354/NCH1/CZ

## dated 25 June 2008



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |         |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Result – Remark | Verdict |
| Annex ZA                 | <b>C: NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR RELEVANT EUROPEAN PUBLICATIONS</b><br><br>This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).<br><br>NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 | P       |
|                          | — IEC 60050-151<br>— IEC 60050-195<br>EN 60065:1998 + corr. June 1999 IEC 60065 (mod):1998<br>EN 60073:1996 IEC 60073:1996<br>HD 566 S1:1990 IEC 60085:1984<br>HD 214 S2:1980 IEC 60112:1979<br>HD 611.4.1.S1:1992 IEC 60216-4-1:1990<br>HD 21 <sup>1)</sup> Series IEC 60227 (mod) Series<br>HD 22 <sup>2)</sup> Series IEC 60245 (mod) Series<br>EN 60309 Series IEC 60309 Series<br>EN 60317-43:1997 IEC 60317-43:1997<br>EN 60320 Series IEC 60320 (mod) Series<br>HD 384.3 S2:1995 IEC 60364-3 (mod):1993<br>HD 384.4.41 S2:1996 IEC 60364-4-41 (mod):1992 <sup>3)</sup><br>EN 132400:1994 <sup>4)</sup> IEC 60384-14:1993<br>+ A2:1998 + A3:1998 + A4:2001<br>EN 60417-1 IEC 60417-1<br>HD 625.1 S1:1996 + corr. Nov. 1996 IEC 60664-1 (mod):1992<br>EN 60695-2-2:1994 IEC 60695-2-2:1991<br>EN 60695-2-11:2001 IEC 60695-2-11:2000<br>— IEC 60695-2-20:1995<br>— IEC 60695-10-2:1995<br>— IEC 60695-11-3:2000<br>— IEC 60695-11-4:2000<br>EN 60695-11-10:1999 IEC 60695-11-10:1999<br>EN 60695-11-20:1999 IEC 60695-11-20:1999<br>EN 60730-1:2000 IEC 60730-1:1999 (mod)<br>EN 60825-1:1994 + corr. Febr. 1995 + A11:1996 + corr. July 1997 IEC 60825-1:1993<br>EN 60825-2:2000<br>— IEC 60825-2:2000<br>— IEC 60825-9:1999<br>EN 60851-3:1996 IEC 60851-3:1996<br>EN 60851-5:1996 IEC 60825-5:1996<br>EN 60851-6:1996 IEC 60851-6:1996<br>— IEC 60885-1:1987<br>EN 60990:1999 IEC 60990:1999<br>— IEC 61058-1:2000<br>EN 61965:2001 IEC 61965:2000<br>EN ISO 178:1996 ISO 178:1993<br>EN ISO 179 Series ISO 179 Series<br>EN ISO 180:2000 ISO 180:1993 |                 |         |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

| IEC 60950-1 / EN 60950-1 |                                                                                                                                                                                                                                              |                                |         |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------|
| Clause                   | Requirement – Test                                                                                                                                                                                                                           | Result – Remark                | Verdict |
|                          | —                                                                                                                                                                                                                                            | ISO 261:1998                   |         |
|                          | —                                                                                                                                                                                                                                            | ISO 262:1998                   |         |
|                          | EN ISO 527 Series                                                                                                                                                                                                                            | ISO 527 Series                 |         |
|                          | —                                                                                                                                                                                                                                            | ISO 386:1984                   |         |
|                          | EN ISO 4892 Series                                                                                                                                                                                                                           | ISO 4892 Series                |         |
|                          | —                                                                                                                                                                                                                                            | ISO 7000:1989                  |         |
|                          | EN ISO 8256:1996                                                                                                                                                                                                                             | ISO 8256:1990                  |         |
|                          | —                                                                                                                                                                                                                                            | ISO 9772:1994                  |         |
|                          | EN ISO 9773:1998                                                                                                                                                                                                                             | ISO 9773:1998                  |         |
|                          | —                                                                                                                                                                                                                                            | ITU-T:1988 Recommendation K.17 |         |
|                          | —                                                                                                                                                                                                                                            | ITU-T:2000 Recommendation K.21 |         |
|                          | 1) The HD 21 series is related to, but not directly equivalent with the IEC 60227 series                                                                                                                                                     |                                |         |
|                          | 2) The HD 22 series is related to, but not directly equivalent with the IEC 60245 series                                                                                                                                                     |                                |         |
|                          | 3) IEC 60364-4-41:1992 is superseded by IEC 60364-4-41:2001                                                                                                                                                                                  |                                |         |
|                          | 4) EN 132400, Sectional Specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (Assessment level D), and its amendments are related to, but not directly equivalent to IEC 60384-14 |                                |         |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

|                                                                                           |                                      |            |                        |                                        |                                        |   |
|-------------------------------------------------------------------------------------------|--------------------------------------|------------|------------------------|----------------------------------------|----------------------------------------|---|
| 1.5.1                                                                                     | TABLE: list of critical components   |            |                        |                                        |                                        | P |
| Object/part No.                                                                           | Manufacturer/<br>trademark           | Type/model | Technical data         | Standard                               | Mark(s) of<br>conformity <sup>1)</sup> |   |
| Secondary<br>Current<br>Transformer                                                       | Taehwattans Co<br>Ltd                | TZ-77V/L   | 5A-20A,<br>50 to 60Hz  | -                                      | -                                      |   |
| PCB                                                                                       | Circuit Image<br>MFG Pte Ltd         | S1141      | Rated 94V-0,<br>130 °C | UL 94                                  | UL                                     |   |
| Relays<br>(K1 & K2)                                                                       | Matsushita<br>Electric Works<br>Ltd. | ALZ11B12   | 16A 250V~              | DIN EN61810-1<br>IEC 61810-1           | VDE                                    |   |
| Terminal Block<br>(JP2 & JP3)                                                             | PTR Meßtechnik<br>GmbH & Co. KG      | AK 100/..  | 250V, 24A              | DIN EN 60998-1<br>DIN EN 60998-2-<br>1 | VDE                                    |   |
| <sup>1)</sup> an asterisk indicates a mark which assures the agreed level of surveillance |                                      |            |                        |                                        |                                        |   |

| 1.6.2                                                                                                                                                                                       | TABLE: electrical data (in normal conditions) |       |       |        |             | P                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-------|-------|--------|-------------|-----------------------------|
| fuse #                                                                                                                                                                                      | I rated (A)                                   | U (V) | P (W) | I (mA) | I fuse (mA) | condition/status            |
| -                                                                                                                                                                                           | -                                             | 216   | 927.6 | 4546   | 4546        | Continuous operation , 50Hz |
| -                                                                                                                                                                                           | 6.0                                           | 240   | 1164  | 5053   | 5053        | Continuous operation , 50Hz |
| -                                                                                                                                                                                           | -                                             | 254.4 | 1299  | 5307   | 5307        | Continuous operation , 50Hz |
| Note: *Maximum normal load is defined as: The EUT was connected to a logic board and continuous operating with lighting bulbs (250W*2, 500W*1) installed, test conducted without enclosure. |                                               |       |       |        |             |                             |

|                                               |                                                     |              |                  |         |                   |          |   |
|-----------------------------------------------|-----------------------------------------------------|--------------|------------------|---------|-------------------|----------|---|
| 2.10.3 and 2.10.4                             | TABLE: clearance and creepage distance measurements |              |                  |         |                   |          | P |
| clearance cl and creepage distance dcr at/of: | Up (V)                                              | U r.m.s. (V) | required cl (mm) | cl (mm) | required dcr (mm) | dcr (mm) |   |
| Reinforced - Primary trace to secondary trace | 339                                                 | 240          | 4.0              | 5.98    | 5.0               | 5.98     |   |
| Note: -                                       |                                                     |              |                  |         |                   |          |   |

|                                       |                                                 |           |                     |                     |            |
|---------------------------------------|-------------------------------------------------|-----------|---------------------|---------------------|------------|
| 2.10.5                                | TABLE: distance through insulation measurements |           |                     |                     | N/A        |
| distance through insulation di at/of: |                                                 | Up<br>(V) | test voltage<br>(V) | required di<br>(mm) | Di<br>(mm) |
| -                                     |                                                 | -         | -                   | -                   | -          |
| Note:                                 |                                                 |           |                     |                     |            |

**Test Report No. S08EEC01354/NCH1/CZ**  
dated 25 June 2008



PSB Singapore

|                                    |                                |                    |        |                                  |                     |
|------------------------------------|--------------------------------|--------------------|--------|----------------------------------|---------------------|
| 4.5                                | TABLE: maximum temperatures    |                    |        | P                                |                     |
|                                    | test voltage (V) ..... :       | 216V & 254.4V      |        | —                                |                     |
|                                    | t <sub>amb1</sub> (°C) ..... : | -                  |        | —                                |                     |
|                                    | t <sub>amb2</sub> (°C) ..... : | -                  |        | —                                |                     |
| maximum temperature T of part/at:: |                                | T (°C)             |        | allowed<br>T <sub>max</sub> (°C) |                     |
| Test Voltage: 254.4V / 50Hz        |                                | 216V               | 254.4V |                                  |                     |
| Ambient                            |                                | 25                 | 23     |                                  |                     |
| T1 Winding                         |                                | 28                 | 26     | 90                               |                     |
| T2 Winding                         |                                | 26                 | 25     | 90                               |                     |
| Capacitor C1                       |                                | 26                 | 25     | 85                               |                     |
| Relay (K2)                         |                                | 29                 | 27     | 90                               |                     |
| Relay (K1)                         |                                | 36                 | 33     | 90                               |                     |
| JP2 Connector                      |                                | 29                 | 27     | -                                |                     |
| Diode (D2)                         |                                | 29                 | 27     | -                                |                     |
| Transistor (Q2)                    |                                | 26                 | 25     | -                                |                     |
| PCB Near T1                        |                                | 26                 | 24     | 130                              |                     |
| Diode (D2)                         |                                | 28                 | 26     | -                                |                     |
| Note:                              |                                |                    |        |                                  |                     |
| temperature T of winding:          | R <sub>1</sub> (Ω)             | R <sub>2</sub> (Ω) | T (°C) | allowed<br>T <sub>max</sub> (°C) | insulation<br>class |
| -                                  | -                              | -                  | -      | -                                | -                   |

|       |                                                  |                          |                             |     |
|-------|--------------------------------------------------|--------------------------|-----------------------------|-----|
| 4.5.2 | TABLE: ball pressure test of thermoplastic parts |                          |                             | N/A |
|       | allowed impression diameter (mm) .....           | ≤ 2 mm                   |                             | —   |
| Part  |                                                  | test temperature<br>(°C) | impression diameter<br>(mm) |     |
| -     |                                                  | -                        | -                           |     |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

|      |                           |                  |                |                    |     |
|------|---------------------------|------------------|----------------|--------------------|-----|
| 4.7  | TABLE: resistance to fire |                  |                |                    | N/A |
| part | manufacturer of material  | type of material | thickness (mm) | flammability class |     |
| -    | -                         | -                | -              | -                  |     |

|                               |                                                                       |                                 |                       |
|-------------------------------|-----------------------------------------------------------------------|---------------------------------|-----------------------|
| 5.2                           | TABLE: electric strength tests, impulse tests and voltage surge tests |                                 | P                     |
| test voltage applied between: |                                                                       | test voltage (V)<br>a.c. / d.c. | breakdown<br>Yes / No |
| Unit: Primary to secondary    |                                                                       | AC 3000                         | No                    |
| supplementary information     |                                                                       |                                 |                       |
|                               |                                                                       |                                 |                       |



**Test Report No. S08EEC01354/NCH1/CZ**  
dated 25 June 2008



PSB Singapore

| 5.3                        | TABLE: fault condition tests         |                  |                 |          |             | P                                                                                      |
|----------------------------|--------------------------------------|------------------|-----------------|----------|-------------|----------------------------------------------------------------------------------------|
|                            | ambient temperature (°C) .....       | 22               |                 |          |             | —                                                                                      |
|                            | model/type of power supply .....     | -                |                 |          |             | —                                                                                      |
|                            | manufacturer of power supply .....   | -                |                 |          |             | —                                                                                      |
|                            | rated markings of power supply ..... | -                |                 |          |             | —                                                                                      |
| Component no.              | fault                                | test voltage (V) | test time       | Fuse No. | current (A) | result                                                                                 |
| JP1B                       | Short                                | 254.4            | 20 mins         | -        | 0.2         | Lights cut off. No hazard.<br>Transformer (T1): 29°C<br>Relay (K1): 31°C               |
| JP-4A<br>(com Z1)          | Short                                | 254.4            | 30 mins         | -        | 5.74        | Normal operating condition.<br>No hazard<br>Transformer (T1): 29°C<br>Relay (K1): 36°C |
| T2<br>(Secondary winding)  | Short                                | 254.4            | 1 hr<br>30 mins | -        | 5.36        | Normal operating condition.<br>No hazard<br>Transformer (T1): 26°C<br>Relay (K1): 33°C |
| D2                         | Short                                | 254.4            | 1 hr            | -        | 5.0         | Normal operating condition.<br>No hazard<br>Transformer (T1): 28°C<br>Relay (K1): 31°C |
| D1                         | Short                                | 254.4            | 1 hr            | -        | 5.36        | Normal operating condition.<br>No hazard<br>Transformer (T1): 29°C<br>Relay (K1): 34°C |
| supplementary information: |                                      |                  |                 |          |             |                                                                                        |

**Test Report No. S08EEC01354/NCH1/CZ**  
**dated 25 June 2008**



PSB Singapore

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January 2008

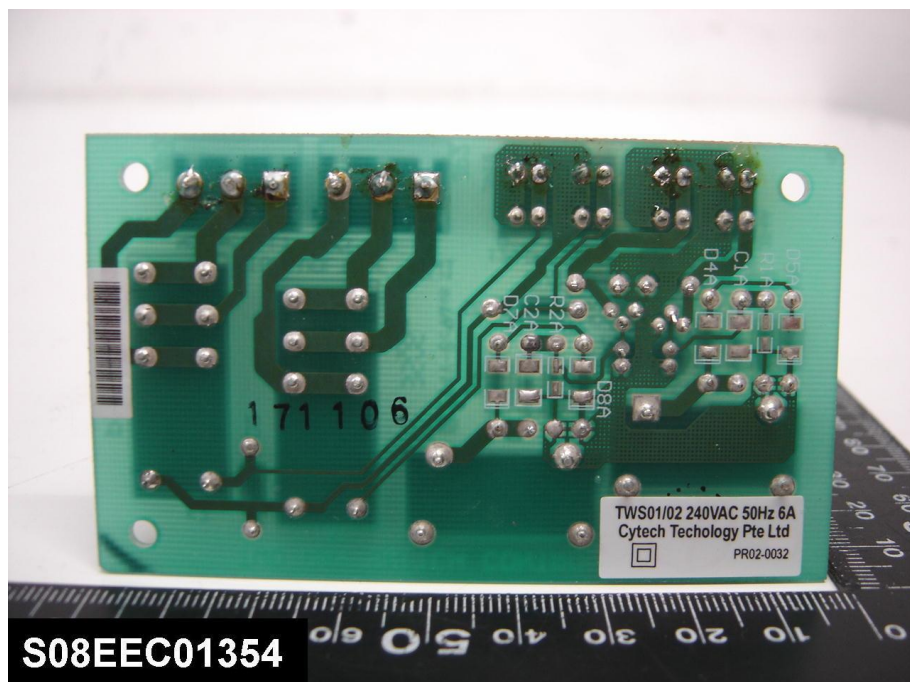
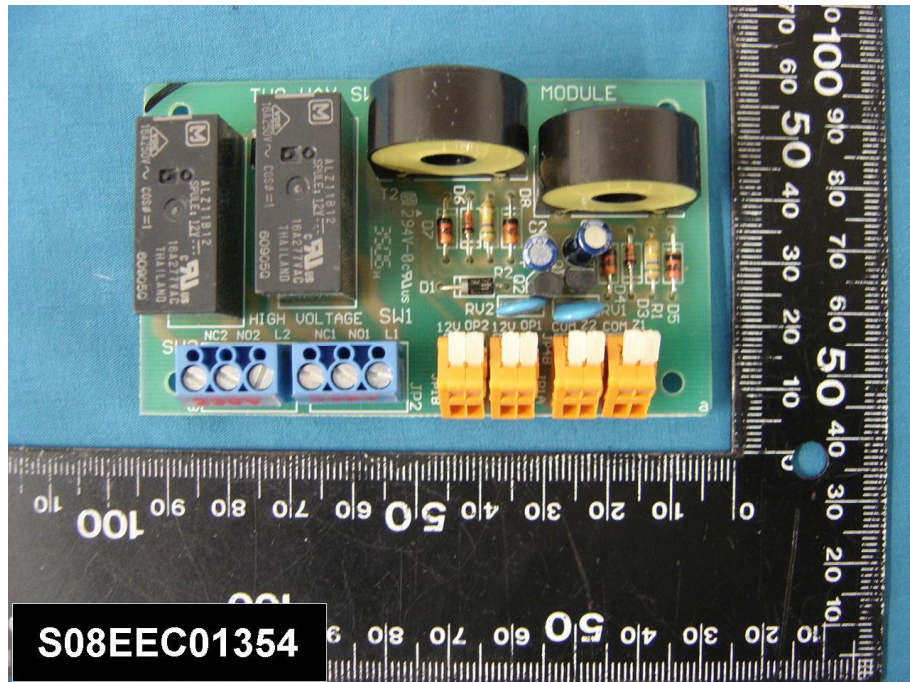
Test Report No. S08EEC01354/NCH1/CZ  
dated 25 June 2008



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Appendix 1

External views of Lighting Control Module  
Model: TWS01/02



**Test Report No. S08EEC01354/NCH1/CZ**  
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Appendix 2

Product label of Lighting Control Module

Model: TWS01/02



S08EEC01354