

# **TRENDware International Inc. LVD REPORT**

**Applicant : TRENDware International Inc.**

**Model No : TEW-230APB**

**Report No: C51LV287**



No. 3, Alley 5, Lane 217, Chung Hsiao E. Rd., Sec 3  
Taipei, Taiwan

TEL : 886-2-8773-6799

**Lily Technology Co., Ltd.**

|                      |  |
|----------------------|--|
| Report No            | C51LV287   |
| Applicant            | CAMEO Communications, INC.<br>6F, NO. 22, Chung Shin Rd., Hsi-Chih,<br>Taipei 221, Taiwan. |
| Test item            | Low Voltage Directive  |
| Items tested         | 802.11b Wireless Access Point  |
| Model No.            | WLB-2006 & family models (See the page 2)  |
| Sample No.           | # C51287   |
| Rating               | TNV and SELV   |
| Sample received date | 11/07/2003   |
| Specifications       | EN60950, 2000 / IEC 60950, 3 <sup>rd</sup> Ed, 1999  |
| Results              | As detailed within this report   |
| Prepared by          | <u>Flora Shih</u> project engineer   |
| Authorized by        | <u>Tony Chen</u> Laboratory Manager  |
| Issue date           | Nov. / 17 / 2003 (month / day / year)  |
| <b>Modifications</b> | <b>None</b>  |
| Tested by            | Lily Technology Co., Ltd.  |
| Office at            | No. 3, Alley 5, Lane 217, Chung Hsiao E. Road, Sec.3, Taipei<br>Taiwan                     |

**Conditions of issue:**

**This test report shall not be reproduced except in full, without written approval of LTC. And the test result contained within this report only relate to the sample submitted for testing.**

| <b>Trade Name</b>                                | <b>Model Name</b>    |
|--|----------------------|
| <b>FXC</b>                                       | <b>RF2400</b>        |
| <b>SVEC</b>                                      | <b>FD1812</b>        |
| <b>LG CNS</b>                                    | <b>LW2200AP</b>      |
| <b>KTI</b>                                       | <b>KWB-1111</b>      |
| <b>CAMEO</b>                                     | <b>WLB-2006A</b>     |
| <b>CAMEO</b>                                     | <b>WLB-2006B</b>     |
| <b>CAMEO</b>                                     | <b>WLB-2006C</b>     |
| <b>KYE</b>                                       | <b>GW-7100AP</b>     |
| <b>LEMEL</b>                                     | <b>LM-WLB800AP/S</b> |
| <b>TRENDware</b>                                 | <b>TEW-230AP</b>     |
| <b>SVEC</b>                                      | <b>FD1813</b>        |
| <b>PEABIRD<br/>(ERTHCOM NETWORKS CORP.)</b>      | <b>PEAB-WL-AP</b>    |
| <b>Connectland<br/>(ESPACE PC INTERNATIONAL)</b> | <b>WIRE-CNL-AP</b>   |
| <b>LG CNS</b>                                    | <b>LW2205AP</b>      |
| <b>Toplink</b>                                   | <b>WL-2200A</b>      |
| <b>CAMEO</b>                                     | <b>WLB-2007A</b>     |
| <b>CAMEO</b>                                     | <b>WLB-2007B</b>     |
| <b>CAMEO</b>                                     | <b>WLB-2007C</b>     |
| <b>TRENDware</b>                                 | <b>TEW-230APB</b>    |
| <b>ALLNET GmbH</b>                               | <b>ALL0185A</b>      |
| <b>CAMEO</b>                                     | <b>WLB-2006</b>      |
| <b>CAMEO</b>                                     | <b>WLB-2007</b>      |
| <b>IC Intracom Asia Co., Ltd.</b>                | <b>522830</b>        |

**SAFETY TEST RESULTS**

The results appear in the following order:

EN60950, 2000 / IEC 60950, 3<sup>rd</sup> Ed, 1999

Safety of information technology equipment –

The results contained herein apply only to the particular samples tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by Lily Technology Co., Ltd. of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of the Director, Lily Technology Co., Ltd. who reserves the absolute right to agree or reject all or any of the details of any items of publicity for which consent may be sought.

Test Report EN 60950, 2000 / IEC 60950, 3<sup>rd</sup> Ed, 1999

Equipment mobility. ....: Movable

Operating condition. ....: Continuous

Tested for IT power systems. ....: No

IT testing, phase-phase voltage (V). ....: N/A

Class of equipment. ....: Class III

Mass of equipment (kg). ....: <18kg

Protection against ingress of water. ....: N/A

Possible test case verdicts:

- test case does not apply to the test object. ....: N
- test object does meet the requirement. ....: P
- test object does not meet the requirements. ....: F

General remarks

“(see appended table)” refers to a table appended the report.  
Throughout this report a point is used as the decimal separator.

1. Safety Strategy
  - The equipment is powered from SELV by an UL certified AC/DC Adaptor.

2. Testing Environment:

All testing was conducted at:

- An ambient temperature in the range 25 °C to 35 °C.
- A relative humidity in the range 25% to 75%
- An air pressure in the range 86KPa to 106Kpa

## RESULTS

Report No. : C51LV287

Test date : 11/07/2003, Lily Technology Co., Ltd., TEL : 886-2-8773-6799, Fax : 886-2-8773-6794

| Clause  | Requirement – Test  | Result - Remark   | Verdict |
|---------|---|---|---------|
| 1.      | <b>GENERAL</b>  |   |         |
| 1.1     | <b>SCOPE</b>  |   |         |
| 1.1.1   | Equipment covered by this standard.   | The product is within the scope of IEC 60950  | --      |
| 1.1.2   | Additional requirements:  |   |         |
|         | Exposure to extreme temperatures, excessive dust, moisture or vibration; to flammable gases; to corrosive or explosive atmospheres. | This equipment is not intended to operate in a “ normal” environment. (Offices and homes).  | --      |
|         | Electro medical equipment connected to the patient.   | This equipment is not an electromedical equipment intended to be physically connected to a patient.   | --      |
|         | Equipment used in vehicles, ships or aircrafts, in tropical countries, or at elevations > 2000m.                                    | This equipment is intended to operate in a “normal ” environment. (Office and homes)  | --      |
|         | Equipment intended for use where ingress of water is possible.  | This equipment is intended to be used in applications where ingress of water is not regarded possible. The equipment is non- protected according to IEC 60529 | --      |
|         | IP-classification (IEC 60529) (IP)  | IP X0.  | --      |
| 1.2.2   | <b>OPERATING CONDITIONS</b>   |   |         |
| 1.2.2.1 | Normal load as described in Annex L or as close as possible to the most severe normal use.  | The unit is running to communicate and transmit data.   | --      |
| 1.2.2.2 | Rated operating time as assigned by the Manufacturer.   | The manufacturer has not declared a rated operating time.   | --      |
| 1.2.2.3 | -1.2.2.5 Continuous operation / Shot-time operation / Inter mitten operation.   | The equipment is regarded to be for continuous operation.   | --      |

| Clause  | Requirement – Test   | Result - Remark  | Verdict   |
|---------|--|--|-----------|
| 1.5.    | <b>COMPONENTS</b>  |  |           |
| 1.5.1   | General  | Components which were found to affect safety aspects comply with the requirements of this standard or within the safety aspects of the relevant IEC component standards. (see appended tables)               | <b>P</b>  |
| 1.5.2   | Evaluation and testing components  | Components which are certified to IEC and / or national standards are used correctly within their ratings. components not covered by IEC standards are tested under the conditions present in the equipment. | <b>P</b>  |
|         | Dimensions (mm) of mains plug for direct plug-in equipment                   | Not direct plug-in equipment.  | <b>N</b>  |
|         | Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N) |  | <b>--</b> |
| 1.5.3   | Thermal controls   |  | <b>N</b>  |
| 1.5.4   | Transformers   | Transformers used are suitable for their intended application and comply with the relevant requirements of the standard.   | <b>N</b>  |
| 1.5.5   | Interconnecting cables   | No interconnection cables.   | <b>N</b>  |
| 1.5.6   | Capacitors in primary circuits   | No X-capacitor.  | <b>N</b>  |
| 1.5.7.1 | -1.5.7.3 Double or reinforced insulation bridged by components.              |  | <b>N</b>  |
| 1.5.8   | Components in equipment for IT power system                                  |  | <b>N</b>  |
| 1.6.    | <b>POWER INTERFACE</b>   | Class III equipment  | <b>N</b>  |
| 1.6.1   | AC power distribution systems  |  | <b>N</b>  |

| Clause | Requirement – Test   | Result - Remark | Verdict  |
|--------|--|-----------------|----------|
| 1.6.2  | Input current  |                 | <b>N</b> |
|        | Test voltage (at each rated voltage or at each end of a rated voltage range) |                 | --       |
|        | Measured current   |                 | --       |
|        | Deviation  |                 | --       |
| 1.6.3  | Voltage limit of hand – held equipments (max. 250V)                          |                 | <b>N</b> |
| 1.6.4  | Neutral conductor  |                 | <b>N</b> |

|       |  |   |          |
|-------|--|---|----------|
| 1.7.  | <b>MARKING AND INSTRUCTIONS</b>          |   | <b>P</b> |
| 1.7.1 | Power rating                             | The equipment marking is located on outside surface of the equipment.   | <b>P</b> |
|       | Rated voltage (s) or voltage range(s)    | 5VDC  | --       |
|       | Symbol of nature of supply for d.c. .... |   | --       |
|       | Rated frequency or frequency range       |   | --       |
|       | Rated current (A) .....                  |   | --       |
|       | Manufacturer .....                       |   | --       |
|       | Trademark .....                          |   | --       |
|       | Type/model .....                         | WLB-2006 & Family Models<br>(See the Page 2)  | --       |
|       | Symbol of Class II .....                 | Class III   | --       |
|       | Certification marks .....                | CE mark   | --       |
| 1.7.2 | Safety instructions                      | The user's manual contains information for operation, installation, servicing, transport, storage and technical data. Continuous operation. | <b>P</b> |

| Clause  | Requirement – Test                        | Result - Remark  | Verdict   |
|---------|---|--|-----------|
| 1.7.3   | Short duty cycles                         |  | <b>N</b>  |
| 1.7.4   | Supply voltage adjustment                 | Class III equipment.   | <b>N</b>  |
| 1.7.5   | Power outlets on the equipment            | Class III equipment.   | <b>N</b>  |
| 1.7.6   | Fuse identification                       | No primary fuse.   | <b>N</b>  |
| 1.7.7   | Wiring terminals                          |  | <b>N</b>  |
| 1.7.7.1 | Protective earthing and bonding terminals | Class III equipment  | <b>N</b>  |
| 1.7.7.2 | Terminal for ac. mains supply conductors  | Class III equipment  | <b>N</b>  |
| 1.7.8   | Controls and indicators                   |  | <b>N</b>  |
| 1.7.8.1 | Identification, location and marking      |  | <b>N</b>  |
| 1.7.8.2 | Colours                                   | For functional indication LED lights when the equipment is operating.  | <b>P</b>  |
| 1.7.8.3 | Symbols                                   | There are no mains switches in the equipment.  | <b>N</b>  |
| 1.7.8.4 | Markings using figures                    | No indicators for different positions.   | <b>N</b>  |
| 1.7.9   | Isolation of multiple power sources       |  | <b>N</b>  |
| 1.7.10  | IT power system                           |  | <b>N</b>  |
| 1.7.11  | Thermostats and other regulating devices  |  | <b>N</b>  |
| 1.7.12  | Language                                  | User's manual and marking were provided in English Versions in other language will be provided when the equipment will be applied for other national certificated. | <b>P</b>  |
|         | Language .....                            | English  | <b>--</b> |
| 1.7.13  | Durability                                | The marking withstands required tests.   | <b>N</b>  |
| 1.7.14  | Removable parts                           |  | <b>N</b>  |
| 1.7.15  | Replaceable batteries                     | No lithium batteries   | <b>N</b>  |
| 1.7.16  | Operator access with a tool               | No operator access area with tool.   | <b>N</b>  |
| 1.7.17  | Equipment for restricted access location  | Equipment not intended for installation in RAL.  | <b>N</b>  |

| Clause | Requirement – Test | Result - Remark | Verdict |
|--------|--------------------|-----------------|---------|
|--------|--------------------|-----------------|---------|

|         |   |                      |          |
|---------|---|----------------------|----------|
| 2..     | <b>PROTECTION FORM HAZARDS</b>                              |                      | <b>P</b> |
| 2.1.    | <b>PROTECTION AGAINST ELECTRIC SHOCK AND ENERGY HAZARDS</b> |                      | <b>P</b> |
| 2.1.1   | Protection in operator access areas                         |                      | <b>N</b> |
| 2.1.1.1 | Access to energized parts                                   | Class III equipment. | <b>N</b> |
| 2.1.1.2 | Battery compartments  |                      | <b>N</b> |
| 2.1.1.3 | Access to ELV wiring  |                      | <b>N</b> |
| 2.1.1.4 | Access to hazardous voltage circuit wiring                  |                      | <b>N</b> |
| 2.1.1.5 | Energy hazards  | Class III equipment. | <b>N</b> |
| 2.1.1.6 | Manual controls   |                      | <b>N</b> |
| 2.1.1.7 | Discharge of capacitors in the primary circuit              |                      | <b>N</b> |
|         | Time-constant (s)   |                      |          |
| 2.1.2   | Protection in service access areas                          |                      | <b>N</b> |
| 2.1.3   | Protection in restricted access locations                   |                      | <b>N</b> |

|         |   |   |          |
|---------|---|---|----------|
| 2.2.    | <b>SELV CIRCUITS</b>                          |   | <b>N</b> |
| 2.2.1   | General requirement                           | SELV limits are not exceeded under normal condition and after a single fault. | <b>P</b> |
| 2.2.2   | Voltage under normal conditions               | Within SELV limits  | <b>P</b> |
| 2.2.3   | Voltage under fault condition                 | Moreover a limit of 71 V peak, or 120 V dc. shall not be exceeded.            | <b>P</b> |
| 2.2.3.1 | -2.2.3.3 Method used for separation           | Class III equipment.  | <b>N</b> |
| 2.2.4   | Connection of SELV circuits to other circuits | SELV circuits are only connected to other SELV circuits.                      | <b>P</b> |

| Clause | Requirement – Test  | Result - Remark   | Verdict |
|--------|---|---|---------|
| 2.3    | <b>TNV CIRCUITS</b>   |   | --      |
| 2.3.1  | Limits  |   | N       |
|        | Type of TNV circuits  | No TNV circuits.  | N       |
| 2.3.2  | Separation from other circuits and from accessible parts          | Class III equipment.  | N       |
| 2.3.3  | Separation from hazardous voltage                                 | No hazardous voltage.   | N       |
| 2.3.4  | Connection of TNV circuits to other circuits                      | No TNV circuits.  | N       |
| 2.3.5  | Test for operating voltage generated externally                   | Test is conducted.  | N       |
| 2.4.   | <b>LIMITED CURRENT CIRCUIT:</b>                                   | 2.4.1-2.4.3;No limited current circuits.  | N       |
| 2.5    | <b>LIMITED POWER SOURCE</b>                                       | No Limited power source.  | N       |
| 2.6.   | <b>PROVISIONS FOR EARTHING AND BONDING</b>                        | 2.6.1-2.6.5.8; Class III equipment.   | N       |
| 2.7.   | <b>OVERCURRENT AND EARTH FAULT PROTECTION IN PRIMARY CIRCUITS</b> | Class III equipment   | N       |
| 2.8.   | <b>SAFETY INTERLOCKS</b>  | 2.8.1-2.8.8; No safety interlocks.  | N       |
| 2.9    | <b>ELECTRICAL INSULATION</b>                                      |   |         |
| 2.9.1  | Properties of insulating materials                                | The insulating materials are inside the approved transformer. No driving belts or couplings used. | N       |
| 2.9.2  | Humidity conditioning   | Humidity treatment performed at 25 °C for 48hrs at 91-95%   | N       |
| 2.9.3  | Requirements for insulation                                       | Please refer to 4.5.1, 5.2 and 2.10   | P       |

| Clause | Requirement – Test       | Result - Remark   | Verdict  |
|--------|--------------------------|---|----------|
| 2.9.4  | Insulation parameters    | Application complies with sub-clauses 4.5.1, 5.2 and 2.10 | <b>P</b> |
| 2.9.5  | Categories of insulation | Insulation is consider to be supplementary insulation.    | <b>P</b> |

|          |   |   |          |
|----------|---|---|----------|
| 2.10     | <b>CLEARANCES, CREEPAGE DISTANCES AND DISTANCE THOUGH INSULATION</b>                        |   |          |
|          | Normal voltage  | 120V  | --       |
|          | Pollution degree  | Gr. II  | --       |
|          | CTI rating  | PCB:> 100, Other parts :>100                        | --       |
| 2.10.1   | General   | Considered. see the following clauses:              | --       |
| 2.10.2   | Determination of working voltages   |   | <b>P</b> |
| 2.10.3   | Clearances  | See table 2.10                                      | <b>P</b> |
| 2.10.3.1 | General   | Refer below:  | --       |
|          | 10mm air gap between hazardous voltage and accessible conductive parts of enclosure.        |   | <b>N</b> |
|          | 2mm air gap between hazardous voltage and earthed accessible conductive parts of enclosure. |   | <b>N</b> |
| 2.10.3.2 | Clearances in primary circuits  | Not applicable.                                     | <b>N</b> |
| 2.10.3.3 | Clearances in secondary circuits  | See table 2.10                                      | <b>P</b> |
| 2.10.3.4 | Measurement of transient levels   | Measurement not relevant                            | <b>P</b> |
| 2.10.4   | Creepage distances  | Considered  | <b>P</b> |
| 2.10.5   | Solid insulation  | Refer below:  | --       |
| 2.10.5.1 | Minimum distances through insulation  | Considered when transformer approval.               | <b>P</b> |
| 2.10.5.2 | Thin sheet material   | Thin sheet insulation used in approval transformer. | <b>N</b> |
| 2.10.5.3 | Printed boards  | PCB does not serve as insulation barrier.           | <b>N</b> |

| Clause   | Requirement – Test                            | Result - Remark                                     | Verdict |
|----------|---|---|---------|
| 2.10.5.4 | Wound components                              | No wound components without interleaved insulation. | N       |
|          | Two wires in contact inside component         | No wound components used.                           | --      |
| 2.10.6   | Coated printed boards                         | No special coating in order to reduce distances.    | N       |
| 2.10.6.1 | General                                       |   |         |
| 2.10.6.2 | Sample preparation and preliminary inspection |   | --      |
| 2.10.6.3 | Thermal cycling                               |   | --      |
| 2.10.6.4 | Thermal ageing                                |   | --      |
| 2.10.6.5 | Electric strength test                        |   | --      |
| 2.10.6.6 | Abrasion resistance test                      |   | --      |
| 2.10.7   | Enclose and sealed parts                      | No enclosed hermetically sealed components.         | N       |
| 2.10.8   | Spacing filled by insulating compound         |   | N       |
| 2.10.9   | Components external terminations              |   | P       |
| 2.10.10  | Insulation with varying dimensions            | No such transformer used.                           | N       |

|     |                                       |  |  |
|-----|---------------------------------------|--|--|
| 3.. | <b>WIRING, CONNECTIONS AND SUPPLY</b> |  |  |
|-----|---------------------------------------|--|--|

|       |   |   |   |
|-------|---|---|---|
| 3.1.  | <b>GENERAL</b>                            |   |   |
| 3.1.1 | Current rating and overcurrent protection | No internal wiring/ interconnection cables. | N |
| 3.1.2 | Protection against mechanical damage      | No internal wiring.                         | N |
| 3.1.3 | Securing of internal wiring               | No internal wiring.                         | N |





















































