

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 1st Edition, 2007-10-31 (Information Technology Equipment - Safety - Part 1: General Requirements) CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Information Technology Equipment Including Electrical Business Equipment
CCN:	NWQQ2, NWQQ8
Complementary CCN:	Audio/Video Apparatus(AZSQ2, AZSQ8)
Product:	LCD Panel
Model:	G065VNZZ, where Z can be 0-9, A-Z or blank.
Rating:	N/A
Applicant Name and Address:	AU OPTRONICS CORP 1 LI-HSIN RD 2 HSINCHU SCIENCE PARK HSINCHU 300 TAIWAN

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of Underwriters Laboratories Inc. ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

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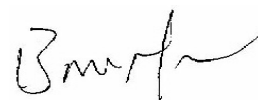
UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

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Reviewed by: Brian Hsu
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Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization - The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
 - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
 - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
 - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

- TFT panel secured on metal chassis, and supplied by SELV.

Model Differences

N/A

Technical Considerations

- Equipment mobility : for building-in
- Operating condition : Continuous
- Mains supply tolerance (%) : N/A
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class III (supplied by SELV)
- Mass of equipment (kg) : < 18 (0.21kg)
- Protection against ingress of water : IP X0
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50 degree C
- The product was investigated to the following additional standards: UL60065/ CAN/CSA-C22.2 No. E60065:03 - Audio, video and similar electronic apparatus - Safety Requirements,

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc. When installed in an end-product, consideration must be given to the following:

- The investigated Pollution Degree is: 2
- The following end-product enclosures are required: Mechanical, Electrical, Fire
-

The Lamp connector of LCD Panel should be supplied by Limited Current Circuit. (for Lamp backlight construction only)

-

To be determined in end product. The Maximum temperature (Tmax) for Panel Surface should not exceed 95 degree C.

-

The component is evaluated for use in SELV circuits and LCC circuits. (for Lamp backlight construction only)

-

Input and Heating should be evaluated in the End-product.

Additional Information

(for Project 09CA46040)

LCD Panel, Model G065VNZZ, where Z can be 0-9, A-Z or blank employing the alternate LED backlight unit interface)

Markings and instructions

Clause Title	Marking or Instruction Details
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Model	Model Number
Date of Manufactured	See Enclosure 7-01 for details. Date Code Format : " Month/Day " (ex: 06/13)

Special Instructions to UL Representative

N/A

Production-Line Testing Requirements						
<u>Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.</u>						
Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
--	--	--	--	--	--	--
<u>Earthing Continuity Test Exemptions - This test is not required for the following models:</u>						
See Models and Ratings for details.						
<u>Electric Strength Test Exemptions - This test is not required for the following models:</u>						
See Models and Ratings for details.						
<u>Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:</u>						
N/A						
<u>Sample and Test Specifics for Follow-Up Tests at UL</u>						
Model	Component	Material	Test	Sample(s)		Test Specifics
N/A						

TABLE: List of Critical Components

Object/part No.	Manufacturer/ trademark	type/model	technical data	CCN	Marks of Conformity
01.LCD panel	AU Optronics Corp.	G065VNZZ, where Z can be 0- 9, A-Z or blank.	TFT Type, 6.5"	NWGQ	UL
01-1 Chassis	Various	Various	Sheet metal	--	--
01-2. PWB	Various	Various	V-1 or better, minimum 105 degree C.	ZPMV2	UL
01-3 Internal Wiring (Optional)	Various	Various	FEP, PTFE, PVC, TFE, neoprene, polyimide or rated VW-1; minimum 30 V, 105 degree C.	AVLV2	UL
01-4. Connectors and Receptacles (Secondary ELV/SELV circuits)	Various	Metal/Plastic	Copper alloy pins housed in bodies of plastic rated V-2 min.	QMFZ2	UL
01-4a. Connectors and Receptacles (Secondary ELV/SELV circuits)	Various	Various	--	ECBT2, RTRT2	UL
01-5. Flexible PWB (Optional)	Various	Various	Min V-1 or VTM-1, 80 degree C for component mounted. Min V-2 or VTM-2, 80 degree C for no component mounted.	ZPXK2 or ZPMV2 or QMFZ2 or QMTS2	UL

Enclosures

<u>Type</u>	<u>Supplement Id</u>	<u>Description</u>
Photographs	3-01	Front View of Model G065VNZZ
Photographs	3-02	Rear View of Model G065VNZZ
Photographs	3-03	Front View of Model G065VNZZ Alternate LED backlight unit interface
Photographs	3-04	Back View with control board of Model G065VNZZ Alternate LED backlight unit interface
Diagrams		
Schematics + PWB		
Manuals		
Miscellaneous	7-01	Data Code

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

1	GENERAL		Pass
1.5	Components		Pass
1.5.1	General		Pass
	Comply with IEC 60950 or relevant component standard		Pass
1.5.2	Evaluation and testing of components	- Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this Standard. - Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950-1 and the relevant component Standard. - Components, for which no relevant IEC Standard exist, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	Pass
1.5.3	Thermal controls		N/A
1.5.4	Transformers		N/A
1.5.5	Interconnecting cables		N/A
1.5.6	Capacitors in primary circuits		N/A
1.5.7	Double insulation or reinforced insulation bridged by 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		N/A
1.6.1	AC power distribution systems		N/A
1.6.2	Input current		N/A
1.6.3	Voltage limit of hand-held equipment		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.6.4	Neutral conductor		N/A
1.7	Marking and instructions		Pass
1.7.1	Power rating	Unit not provided with means for connection to mains.	N/A
	Rated voltage(s) or voltage range(s) (V)		N/A
	Symbol for nature of supply, for d.c. only		N/A
	Rated frequency or rated frequency range (Hz).....		N/A
	Rated current (mA or A)	Evaluated at end product use.	N/A
	Manufacturer's name or trademark or identification mark.....	AU Optronics Corp.	Pass
	Type/model or type reference	LCD Panel, Model G065VNZZ, where Z can be 0-9, A-Z or blank.	Pass
	Symbol for Class II equipment only		N/A
	Other symbols		N/A
	Certification marks.....	UL, C-UL	Pass
1.7.2	Safety instructions	Component suitable for factory assembly only. Evaluated at end product use.	N/A
1.7.3	Short duty cycles		N/A
1.7.4	Supply voltage adjustment		N/A
1.7.5	Power outlets on the equipment.....		N/A
1.7.6	Fuse identification.....		N/A
1.7.7	Wiring terminals		N/A
1.7.7.1	Protective earthing and bonding terminals		N/A
1.7.7.2	Terminal for a.c. mains supply conductors		N/A
1.7.7.3	Terminals for d.c. mains supply conductors		N/A
1.7.8	Controls and indicators		N/A
1.7.8.1	Identification, location and marking		N/A
1.7.8.2	Colours		N/A
1.7.8.3	Symbols according to IEC 60417		N/A
1.7.8.4	Markings using figures.....		N/A
1.7.9	Isolation of multiple power sources		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.7.10	IT power distribution systems		N/A
1.7.11	Thermostats and other regulating devices		N/A
1.7.12	Language..... :	Reviewed only English markings/instructions.	-
1.7.13	Durability	All markings provided on UL Recognized Component labels suitable for surface they are applied upon and meet the durability test.	Pass
1.7.14	Removable parts		N/A
1.7.15	Replaceable batteries		N/A
	Language..... :		-
1.7.16	Operator access with a tool..... :		N/A
1.7.17	Equipment for restricted access locations..... :		N/A

2	PROTECTION FROM HAZARDS		Pass
2.1	Protection from electric shock and energy hazards		N/A
2.1.1	Protection in operator access areas	The accessibility shall be evaluated in the end-use 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 :		N/A
2.1.1.3	Access to ELV wiring		N/A
	Working voltage (V); minimum distance (mm) through insulation :		-
2.1.1.4	Access to hazardous voltage circuit wiring		N/A
2.1.1.5	Energy hazards :		N/A
2.1.1.6	Manual controls	The equipment does not contain any knobs, handles, levers, or the like	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
2.1.1.7	Discharge of capacitors in equipment		N/A
	Time-constant (s); measured voltage (V) :		-
2.1.2	Protection in service access areas		N/A
2.1.3	Protection in restricted access locations		N/A
2.2	SELV circuits		Pass
2.2.1	General requirements	Class III unit supplied by SELV circuits in the end-use product. Evaluated at end product use.	Pass
2.2.2	Voltages under normal conditions (V) :		N/A
2.2.3	Voltages under fault conditions (V) :		N/A
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)		N/A
2.2.3.2	Separation by earthed screen (method 2)		N/A
2.2.3.3	Protection by earthing of the SELV circuit (method 3)		N/A
2.2.4	Connection of SELV circuits to other circuits :		N/A
2.3	TNV circuits		N/A
2.3.1	Limits		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	To be determined in end product.	N/A
2.4.2	Limit values		N/A
	Frequency (Hz) :		-
	Measured current (mA)..... :		-

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Clause	Requirement + Test	Result - Remark	Verdict

	Measured voltage (V)		-
	Measured capacitance (mF).....		-
2.4.3	Connection of limited current circuits to other circuits		N/A
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		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 (mm2), AWG		-
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area (mm2), AWG		-
2.6.3.4	Resistance (Ohm) 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		-

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Clause	Requirement + Test	Result - Remark	Verdict

	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
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		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		N/A
2.7.4	Number and location of protective devices :		N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel :		N/A
2.8	Safety interlocks		N/A
2.8.1	General principles		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

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
2.9.1	Properties of insulating materials		N/A
2.9.2	Humidity conditioning		N/A
	Humidity (%) :		-
	Temperature (°C)..... :		-
2.9.3	Grade of insulation		N/A
2.10	Clearances, creepage distances and distances through insulation		Pass
2.10.1	General	Pollution Degree 2 applicable. For functional insulation, see 5.3.4.	Pass
2.10.2	Determination of working voltage		N/A
2.10.3	Clearances	Class III product - secondary circuits comply with Sub-clause 5.3.4.	N/A
2.10.3.1	General		N/A
2.10.3.2	Clearances in primary circuit		N/A
2.10.3.3	Clearances in secondary circuits		N/A
2.10.3.4	Measurement of transient voltage levels		N/A
2.10.4	Creepage distances	See 5.3.4 for secondary circuits.	N/A
	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		-

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Clause	Requirement + Test	Result - Remark	Verdict

	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
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

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Clause	Requirement + Test	Result - Remark	Verdict

3	WIRING, CONNECTIONS AND SUPPLY		Pass
3.1	General		N/A
3.1.1	Current rating and overcurrent protection		N/A
3.1.2	Protection against mechanical damage		N/A
3.1.3	Securing of internal wiring		N/A
3.1.4	Insulation of conductors	Supplied by SELV.	N/A
3.1.5	Beads and ceramic insulators		N/A
3.1.6	Screws for electrical contact pressure		N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors	No critical clearance/creepage other than functional insulation required.	N/A
	10 N pull test		N/A
3.1.10	Sleeving on wiring		N/A
3.2	Connection to an a.c. mains supply or a d.c. mains supply		N/A
3.2.1	Means of connection		N/A
3.2.1.1	Connection to an a.c. mains supply		N/A
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections		N/A
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter (mm) of cable and conduits		-
3.2.4	Appliance inlets		N/A
3.2.5	Power supply cords		N/A
3.2.5.1	AC power supply cords		N/A
	Type.....		-
	Rated current (A), cross-sectional area (mm ²), 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)		-

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Clause	Requirement + Test	Result - Remark	Verdict

	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		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
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 ²)		-
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type and nominal thread diameter (mm)		-
3.3.6	Wiring terminals design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
3.4	Disconnection from the mains supply		N/A
3.4.1	General requirement		N/A
3.4.2	Disconnect devices		N/A
3.4.3	Permanently connected equipment		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		N/A
3.4.7	Three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

3.5	Interconnection of equipment		Pass
3.5.1	General requirements		Pass
3.5.2	Types of interconnection circuits :	SELV CIRCUITS are only connected to SELV CIRCUITS or LIMITED CURRENT CIRCUITS.	Pass
3.5.3	ELV circuits as interconnection circuits		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4	PHYSICAL REQUIREMENTS		Pass
4.1	Stability		N/A
	Angle of 10°		N/A
	Test: force (N)..... :		N/A
4.2	Mechanical strength		N/A
4.2.1	General		N/A
4.2.2	Steady force test, 10 N		N/A
4.2.3	Steady force test, 30 N		N/A
4.2.4	Steady force test, 250 N		N/A
4.2.5	Impact test		N/A
	Fall test		N/A
	Swing test		N/A
4.2.6	Drop test		N/A
4.2.7	Stress relief test		N/A
4.2.8	Cathode ray tubes		N/A
	Picture tube separately certified :		N/A
4.2.9	High pressure lamps		N/A
4.2.10	Wall or ceiling mounted equipment; force (N) :		N/A
4.3	Design and construction		Pass
4.3.1	Edges and corners		Pass
4.3.2	Handles and manual controls; force (N)..... :		N/A
4.3.3	Adjustable controls		N/A
4.3.4	Securing of parts		Pass
4.3.5	Connection of plugs and sockets		N/A
4.3.6	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		N/A
4.3.8	Batteries		N/A
4.3.9	Oil and grease		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases		N/A
4.3.12	Flammable liquids..... :		N/A
	Quantity of liquid (l)..... :		N/A
	Flash point (°C)..... :		N/A
4.3.13	Radiation; type of radiation		Pass
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)	For alternate construcion: LED Backlight only.	Pass
	Laser class :	--	-
4.3.13.6	Other types :		N/A
4.4	Protection against hazardous moving parts		N/A
4.4.1	General		N/A
4.4.2	Protection in operator access areas		N/A
4.4.3	Protection in restricted access locations		N/A
4.4.4	Protection in service access areas		N/A
4.5	Thermal requirements		N/A
4.5.1	Maximum temperatures	To be determined in end product. The Maximum temperature (Tmax) for Panel Surface should not exceed 95 degree C.	N/A
	Normal load condition per Annex L :		N/A
4.5.2	Resistance to abnormal heat		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

4.6	Openings in enclosures		N/A
4.6.1	Top and side openings		N/A
	Dimensions (mm) :		-
4.6.2	Bottoms of fire enclosures		N/A
	Construction of the bottom :		-
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C)/time (weeks) :		-
4.7	Resistance to fire		N/A
4.7.1	Reducing the risk of ignition and spread of flame		N/A
	Method 1, selection and application of components wiring and materials		N/A
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure	To be determined in end product.	N/A
4.7.2.1	Parts requiring a fire enclosure		N/A
4.7.2.2	Parts not requiring a fire enclosure		N/A
4.7.3	Materials		N/A
4.7.3.1	General		N/A
4.7.3.2	Materials for fire enclosures		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	- All internal materials are min. V-2 or are mounted on a PWB min. V-1; - All Internal wiring is insulated with PVC, TFE, PTFE, FEP, neoprene, polyimide or marked "VW-1" or "FT-1" or better;	N/A
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		N/A
6	CONNECTION TO TELECOMMUNICATION NETWORKS		N/A
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
A	Annex A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
B	Annex B, MOTOR TESTS UNDER ABNORMAL CONDITIONS(see 4.7.2.2 and 5.3.2)		N/A
C	Annex C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N/A
D	Annex D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS		N/A
E	Annex E, TEMPERATURE RISE OF A WINDING		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
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
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
L	Annex L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		N/A
M	Annex M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		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
P	Annex P, NORMATIVE REFERENCES		Pass
Q	Annex Q, BIBLIOGRAPHY		Pass
R	Annex R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
S	Annex S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
T	Annex T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
U	Annex U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A

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Enclosure
National Differences

USA / Canada

IEC 60950-1			
SubClause	Difference + Test	Result - Remark	Verdict

USA / Canada - Differences to IEC 60950-1:2001, First Edition			
1.1	Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70 and the Canadian Electrical Code, Part1, and when applicable, the National Electrical Safety Code, IEEE C2.		Pass
1.1.1	Equipment able to be installed in accordance with ANSI/NFPA 75 and NEC Art. 645 unless intended for use outside of computer room and provided with such instructions.		Pass
1.1.2	Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded.		N/A
1.1.2	Special requirements apply to equipment intended for use outdoors.		N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20 A.		N/A
1.5.1	All IEC standards for components identified in Annex P.1 replaced by the relevant requirements of CSA and UL component standards in Annex P.1.		Pass
1.5.1	All IEC standards for components identified in Annex P.2 alternatively satisfied by the relevant requirements of CSA and UL component standards in Annex P.2.		Pass
1.5.5	Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like.		N/A
1.5.5	For other than limited power and TNV circuits, the type of output circuit identified for output connector.		N/A
1.5.5	External cable assemblies that exceed 3.05 m in length to be types specified in the NEC and CEC.		N/A
1.5.5	Detachable external interconnecting cables 3.05 m or less in length and provided with equipment marked to identify the responsible organization and the designation for the cable.		N/A
1.5.5	Building wiring and cable for use in ducts, plenums and other air handling space subject to special requirements and excluded from scope.		N/A
1.5.5	Telephone line and extension cords and the like comply with UL 1863 and CSA C22.2 No. 233.		N/A
1.6.1.2	Equipment intended for connection to a d.c. power (mains) distribution system is subject to special		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	circuit classification requirements (e.g., TNV-2)		
1.6.1.2	Earthing of d.c. powered equipment provided.		N/A
1.7	Lamp replacement information indicated on lampholder in operator access area.		N/A
1.7.1	Special marking format for equipment intended for use on a supply system with an earthed neutral and more than one phase conductor.		N/A
1.7.1	Equipment voltage rating not higher than rating of the plug except under special conditions.		N/A
1.7.6	Special fuse replacement marking for operator accessible fuses.		N/A
1.7.7	Identification of terminal connection of the equipment earthing conductor.		N/A
1.7.7	Connectors and field wiring terminals for external Class 2 or Class 3 circuits provided with marking indicating minimum Class of wiring to be used.		N/A
1.7.7	Marking located adjacent to terminals and visible during wiring.		N/A
2.1.1	Screw shell of Edison-base lampholder tied to the neutral conductor.		N/A
2.1.1.1	Bare TNV conductive parts in the interior of equipment normally protected against contact by a cover intended for occasional removal are exempt provided instructions include directions for disconnection of TNV prior to removal of the cover.		N/A
2.3.1.b	Other telecommunication signaling systems (e.g., message waiting) than described in 2.3.1(b) are subject to M.4.		N/A
2.3.1.b	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vp or 60 V d.c., the maximum current limit through a 2000 Ohm or greater resistor with loads disconnected is 7.1 mA peak or 30 mA d.c. under normal conditions.		N/A
2.3.1.b	Limits for measurements across 5000 ohm resistor in the event of a single fault are replaced after 200 ms with the limits of M.3.1.4.		N/A
2.3.2	Enamel coating on signal transformer winding wire allowed as an alternative to Basic insulation in specific telecommunication applications when subjected to special construction requirements and routine testing.		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
2.3.2	In the event of a single fault, the limits of 2.2.3 apply to SELV circuits and accessible conductive parts.		N/A
2.5	Overcurrent protection device required for Class 2 and Class 3 limiting in accordance with the NEC, or for a Limited Power Source, not interchangeable with devices of higher ratings if operator replaceable.		N/A
2.6	Equipment having receptacles for output a.c. power connectors generated from an internal separately derived source have the earthed (grounded) circuit conductor suitably bonded to earth.		N/A
2.6.3.3	For Pluggable Equipment Type A, if neither a) or b) are applicable, the current rating of the circuit is taken as 20 A.		N/A
2.6.3.4	Capacity of connection between earthing terminal and parts required to be earthed subject to special conditions based on the current rating of the circuit.		N/A
2.6.3.4	Protective bonding conductors and their terminals of non-standard constructions (e.g. PWB traces) evaluated to limited short-circuit test of CSA C22.2 No.0.4.		N/A
2.6.4.1	Field wiring terminals for earthing conductors suitable for wire sizes (gauge) used in US and Canada.		N/A
2.7.1	Data for selection of special external branch circuit overcurrent devices marked on the equipment.		N/A
2.7.1	Standard supply outlets protected by overcurrent device in accordance with the NEC, and CEC, Part 1.		N/A
2.7.1	Overcurrent protection for individual transformers that distribute power to other units over branch circuit wiring.		N/A
2.7.1	Additional requirements for overcurrent protection apply to equipment provided with panelboards.		N/A
2.7.1	Non-motor-operated equipment requiring special overcurrent protective device marked with device rating.		N/A
2.10.5.4	Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.4 and Annex U.		N/A
3.1.1	Permissible combinations of internal wiring/external cable sizes for overcurrent and short circuit		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	protection.		
3.1.1	All interconnecting cables protected against overcurrent and short circuit.		N/A
3.2	Wiring methods permit connection of equipment to primary power supply in accordance with the NEC and CEC, Part 1.		N/A
3.2.1	Permitted use for flexible cords and plugs.		N/A
3.2.1	Flexible cords provided with attachment plug rated 125% of equipment current rating.		N/A
3.2.1	Any Class II equipment provided with 15 or 20 A standard supply outlets, Edison-base lampholders or single pole disconnect device provided with a polarized type attachment plug.		N/A
3.2.1.2	Equipment intended for connection to DC mains supply power systems complies with special wiring requirements (e.g., no permanent connection to supply by flexible cord).		N/A
3.2.1.2	Equipment with one pole of the DC mains supply connected to both the equipment mains input terminal and the main protective earthing terminal provided with special instructions and construction provisions for earthing		N/A
3.2.1.2	Equipment with means for connecting supply to earthing electrode conductor has no switches or protective devices between supply connection and earthing electrode connection.		N/A
3.2.1.2	Special markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to earthing conductor at the equipment.		N/A
3.2.1.2	Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the earthing conductor at the equipment.		N/A
3.2.1.2	Terminals and leads provided for permanent connection of DC powered equipment to supply marked to indicate polarity if reverse polarity may result in a hazard.		N/A
3.2.3	Permanently connected equipment has provision for connecting and securing a field wiring system (i.e. conduit, or leads etc.) per the NEC and CEC, Part 1.		N/A
3.2.3	Permanently connected equipment may have		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	terminals or leads not smaller than No. 18 AWG (0.82 mm ²) and not less than 152 mm in length for connection of field installed wiring.		
3.2.3	If supply wires exceed 60 °C, marking indicates use of 75 °C or 90 °C wiring for supply connection as appropriate.		N/A
3.2.3	Equipment compatible with suitable trade sizes of conduits and cables.		N/A
3.2.5	Length of power supply cord limited to between 1.5 and 4.5 m unless shorter length used when intended for a special installation.		N/A
3.2.5	Conductors in power supply cords sized according to NEC and CEC, Part I.		N/A
3.2.5	Power supply cords and cord sets incorporate flexible cords suitable for the particular application.		N/A
3.2.6	Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source.		N/A
3.2.9	Adequate wire bending space and volume of field wiring compartment required to properly make the field connections.		N/A
3.2.9	Equipment intended solely for installation in Restricted Access Locations using low voltage d.c. systems may not need provision for connecting and securing a field wiring system. A method of securing wiring or instructions provided to ensure the wiring is protected from abuse.		N/A
3.3	Field wiring terminals provided for interconnection of units for other than LPS or Class 2 circuits also comply with 3.3.		N/A
3.3	Interconnection of units by LPS or Class 2 conductors may have field wiring connectors other than those specified in 3.3 if wiring is reliably separated.		N/A
3.3.1	Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means.		N/A
3.3.3	Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm ²) or smaller conductor if provided with upturned lugs, cupped washer or equivalent retention.		N/A
3.3.4	Terminals accept wire sizes (gauge) used in the		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	U.S. and Canada.		
3.3.4	Terminals accept current-carrying conductors rated 125% of the equipment current rating.		N/A
3.3.6	Field wiring terminals marked to indicate the material(s) of the conductor appropriate for the terminals used.		N/A
3.3.6	Connection of an aluminum conductor not permitted to terminal for equipment earthing conductor.		N/A
3.3.6	Field wiring connections made through the use of suitable pressure connectors (including set screw type), solder lugs or splices to flexible leads.		N/A
3.4.2	Separate motor control device(s) required for cord-connected equipment rated more than 12 A, or with motor rated more than 1/3 hp or more than 120 V.		N/A
3.4.8	Vertically mounted disconnect devices oriented so up position of handle is "on".		N/A
3.4.11	For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 min require battery disconnect means.		N/A
4.2.8.1	Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more.		N/A
4.2.9	Compartment housing high-pressure lamp marked to indicate risk of explosion.		N/A
4.3.2	Loading test for equipment with handle(s) used to support more than 9 kg tested at four times the weight of the unit.		N/A
4.3.6	In addition to the IEC requirements, Direct Plug-in Equipment complies with UL 1310 or CSA 223 mechanical assembly requirements.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment complies with ANSI/NFPA 30(Table NAE.6).		N/A
4.3.12	Equipment using replenishable liquids marked to indicate type of liquid to be used.		N/A
4.3.13.2	Equipment that produces x-radiation and does not comply with 4.3.12 under all conditions of servicing marked to indicate the presence of radiation where readily visible.		N/A
4.3.13.5	Requirements contained in the applicable national codes and regulations apply to lasers (21 CFR 1040		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	and REDR C1370).		
4.7	Automated information storage equipment intended to contain more than 0.76 m ³ of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system.		N/A
4.7.3.1	Equipment for use in environmental air space other than ducts or plenums provided with metal enclosure or with non-metallic enclosure having adequate fire-resistance and low smoke producing characteristics. Low smoke-producing characteristics evaluated according to UL 2043. Equipment for installation in space used for environmental air as described in Sec. 300-22(c) of the NEC provided with instructions indicating suitability for installation in such locations.		N/A
4.7.3.1	Flame spread rating for external surface of combustible material with exposed area greater than 0.93 m ² or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications.		N/A
4.7.3.4	Wire marked "VW-1" or "FT-1" considered equivalent.		N/A
5.1.8.2	Special earthing provisions and instructions for equipment with high touch current due to telecommunication network connections.		N/A
5.1.8.3	Touch current due to ringing voltage for equipment containing telecommunication network leads.		N/A
5.3.6	Overloading of SELV connectors and printed wiring board receptacles accessible to the operator.		N/A
5.3.6	Tests interrupted by opening of a component repeated two additional times.		N/A
5.3.8.1	Test interrupted by opening of wire or trace subject to certain conditions.		N/A
6	Specialized instructions provided for telephones that may be connected to a telecommunications network.		N/A
6	Marking identifying function of telecommunication type connectors not used for connection to a telecommunication network.		N/A
6.2.1	Special requirements for enameled wiring used as electrical separation provided between parts connected to telecommunication network and telecommunication circuitry intentionally isolated		N/A

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SubClause	Difference + Test	Result - Remark	Verdict
	from network.		
6.2.1	Digital line termination equipment (e.g., NCTE) subject to separation requirements.		N/A
6.3	Equipment remotely powered over telecommunication wiring systems provided with specialized markings adjacent to the connection.		N/A
6.3	Overcurrent protection incorporated into equipment to provide power over telecommunication wiring system not interchangeable with devices of higher ratings if operator replaceable.		N/A
6.4	Additional requirements for equipment intended for connection to a telecommunication network using cable subject to overvoltage from power line failures (Fig. 6C).		N/A
6.4	Where 26 AWG line cord required by Fig. 6C, either the cord is provided with the equipment or described in the safety instructions.		N/A
6.5	Acoustic pressure from an ear piece less than 136 dBA for short duration disturbances, and less than 125 dBA for handsets, 118 dBA for headsets, and 121 dBA for insert earphones, for long duration disturbances.		N/A
7	Equipment associated with the cable distribution system may need to be subjected to applicable parts of Chapter 8 of the NEC.		N/A
H	Ionizing radiation measurements made under single fault conditions in accordance with the requirements of the Code of Federal Regulations 21 CFR 1020 and the Canadian Radiation Emitting Devices Act, REDR C1370.		N/A
M.2	Continuous ringing signals evaluated to Method A subjected to special accessibility considerations.		N/A
M.4	Special requirements for message waiting and similar telecommunications signals.		N/A
NAC	Equipment intended for use with a generic secondary protector marked with suitable instructions.		N/A
NAC	Equipment intended for use with a specific primary or secondary protector marked with suitable instructions.		N/A
NAF	Household/Home Office Document Shredders		N/A
NAF.1.7	Markings and instructions alert the user to key		N/A

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SubClause	Difference + Test	Result - Remark	Verdict

	safety considerations related to use of shredders, including not intended to be used by children, avoid touching document feed opening, avoid clothes and hair entanglement, and avoid aerosol products.		
NAF.2.8.3	Safety interlock cannot be inadvertently activated by the articulated accessibility probe (figure NAF.1).		N/A
NAF.3.4	Provided with an isolating switch complying with 3.4.2, including 3 mm contact gap, with appropriate markings associated with the switch.		N/A
NAF.4.4	Hazardous moving parts are not accessible to the user, as determined using the articulated accessibility probe (figure NAF.1) and the accessibility probe/wedge (figures NAF.2/NAF.3).		N/A