COVER PAGE FOR TEST REPORT

Product Category:	Medical Electrical Equipment
Product Category CCN:	PIDF, PIDF7
Test Procedure:	Classification
Product:	Panel PC
Model/Type Reference:	POC-123xxxxxxxx and POC-125xxxxxxxx, where x may be any alphanumeric character or blank.
Rating(s):	24 Vdc, 3.5 A
Standards:	UL 60601-1, First Edition (2003) CAN/CSA-C22.2 No.601.1-M90 with updates 1 and 2
Applicant Name and Address:	ADVANTECH CO LTD 1 ALLEY 20 LANE 26 RUEIGUANG RD NEIHU DISTRICT TAIPEI 114 TAIWAN

This Report includes the following parts, in addition to this cover page:

1. Specific Inspection Criteria
2. Specific Technical Criteria
3. Clause Verdicts
4. Critical Components
5. Test Results
6. National Differences
7. Enclosures

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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Test Report By:

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SPECIFIC INSPECTION CRITERIA

BA1.0	**Special Instructions to UL Representative**
BA1.1	N/A

BB1.0	**Supporting Documentation**
BB1.1	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.

BC1.0	**Markings and instructions**	
BC1.1	The following markings and instructions are provided as indicated.	
BC1.2	All clause references are from UL 60601-1, First Edition (2003).	
Standard Clause	Clause Title	Marking or Instruction Details
	US Hospital Grade Marking	"Grounding Reliability Can Only Be Achieved When The Equipment Is Connected To An Equivalent Receptacle Marked 'Hospital Only' Or 'Hospital Grade'." (located on product or power supply)
6.1e	Company identification	Classified or Recognized company's name, Trade name, Trademark or File
6.1f	Model	Model number
6.1g	Supply Connection	Voltage range, ac/dc, phases if more than single phase
6.1j	Power Input	Amps, VA, or Watts
6.1l	IP Rating	IPX0
6.1m	Mode of Operation	Continueous

BD1.0	**Production-Line Testing Requirements**			
BD1.1	**Test Exemptions** - The following models are exempt from the indicated test			
	Model	Grounding Continuity	Dielectric Voltage Withstand	Patient Circuit Dielectric Voltage Withstand
	POC123, POC125	Exempt	Exempt	Exempt
BD1.2	**Solid-State Component Test Exemptions** - The following solid-state components may be disconnected from the remainder of the circuitry during either Dielectric Voltage Withstand Test:			
	N/A			

BE1.0	**Sample and Test Specifics for Follow-Up Tests at UL**			
BE1.1	The following tests shall be conducted in accordance with the Generic Inspection Instructions			
	Model	Samples	Test	Test Details
	N/A	N/A	N/A	N/A

SPECIFIC TECHNICAL CRITERIA

TEST REPORT UL 60601-1 Medical Electrical Equipment Part 1: General requirements for safety	
Report Reference No..... :	E214164-A1-UL-1
Compiled by ..... :	Deborah Stubbs
Reviewed by ..... :	Dean Klubnik
Date of issue ..... :	2004-03-05
Standards ..... :	UL 60601-1, First Edition (2003) CAN/CSA-C22.2 No.601.1-M90 with updates 1 and 2
Test procedure ..... :	Classification
Non-standard test method ..... :	N/A
Test item description ..... :	Panel PC
Trademark ..... :	None
Model and/or type reference ..... :	POC-123xxxxxxxx and POC-125xxxxxxxx, where x may be any alphanumeric character or blank.
Rating(s) ..... :	24 Vdc, 3.5 A

GENERAL INFORMATION				
Test item particulars (see also clause 5):				
Classification of installation and use ..... :	Portable			
Supply connection ..... :	Appliance coupler			
Accessories and detachable parts included in the evaluation ..... :	None			
Options included ..... :	None			
Possible test case verdicts:				
- test case does not apply to the test object ..... :	N / A			
- test object does meet the requirement ..... :	P(Pass)			
- test object does not meet the requirement ..... :	F(Fail) (acceptable only if a corresponding, less stringent national requirement is "Pass")			
Abbreviations used in the report:				
- normal condition ..... :	N.C.	- single fault condition .....:	S.F.C.	
- operational insulation ..... :	OP	- basic insulation .....:	BI	
- basic insulation between parts of opposite polarity:	BOP	- supplementary insulation .....:	SI	
- double insulation ..... :	DI	- reinforced insulation .....:	RI	
General remarks:				
- "(see Enclosure #)" refers to additional information appended to the Test Report				
- "(see appended table)" refers to a table appended to the Test Report				
- Throughout the Test Report a point is used as the decimal separator				

General Product Information:	
CA1.0	**Report Summary**
CA1.1	N/A
CB1.0	**Product Description**
CB1.1	Consists of a LCD Module, DVD drive, HDD, Floppy Drive, CPU, Battery pack. Base and electronic component mounted on PWB and enclosed in plastic enclosure, supplied by external Listed adapter.
CC1.0	**Model Differences**
CC1.1	Model POC-123xxxxxxxx is the basic model. Model POC-125-xxxxxxxx is the same as POC-123-xxxxxxxx except for the external power supplies that can be used and the battery pack.
CD1.0	**Additional Information**

CD1.1	This report was modified with Amendment 1 to include an alternate Panel and Inverter Board. Additional Leakage current tests, including separation by protective impedance (17g.5), were conducted to verify components. Corresponding Table 19 was amended to include the supporting data as well as the critical components table. Some minor corrections were also made to the Critical Components table. This report was modified with Amendment 2 to include new Model POC-125-xxxxxxxx, with alternate power supplies and battery pack. Also revised the original Model Number to POC-123xxxxxxxx.	
CE1.0	**Technical Considerations**	
CE1.1	The product was investigated to the following additional standards:	UL 60601-1, EN 60601-1: 1990 + A1:1993 + A2:1995 + A13:1996, CAN/CSA C22.2 No. 601.1-M90 (R1997), CAN/CSA C22.2 No. 601.1S1-94, and CAN/CSA C22.2 No. 601.1B-98 (National Differences for Canada), (except EMC limitations, EN 60601-1-2, Biocompatibility, EN 10993-1, Programmable Electronic Systems, IEC 60601-1-4)
CE1.2	The product was not investigated to the following standards or clauses:	Clause 52.1, Programmable Electronic Systems (IEC 601-1-4), Clause 48, Biocompatibility (ISO 10993-1), Clause 36, Electromagnetic Compatibility (IEC 601-1-2)
CE1.3	The product is Classified only to the following hazards:	Shock, Fire
CE1.4	The degree of protection against harmful ingress of water is:	Ordinary
CE1.6	The mode of operation is:	Continuous
CE1.7	Software is relied upon for meeting safety requirements related to mechanical, fire and shock:	No
CE1.8	The product is suitable for use in the presence of a flammable anesthetics mixture with air or oxygen or with nitrous oxide:	No

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict
6.1c	Markings of the specific power supply affixed	POC-123: Hitron Electronics Corp. Model HES49-24021 only. POC-125: XPIQ Inc Model PCM80PS24 or Sinpro Model MPU50-108	Pass
6.1f	Model or type reference.....:	POC-123xxxxxxxx and POC-125xxxxxxxx	Pass
6.1g	Rated supply voltages or voltage range(s)	24Vdc, 3.5A	Pass
	Type of current.....:	DC	Pass
6.1h	Rated frequency or rated frequency range(s) (Hz) :	DC input provided from Listed Power Supplies. See Critical Components table for power supply ratings	N/A
6.1j	Rated power input (VA, W or A).....:	3.5A	Pass
6.1l	Symbol for degree of protection against ingress of water provided.....:	Optional, IP20 or ordinary equipment.	Pass
6.3b	Indication of different positions of control devices and switches	On Screen Device (OSD) control employed.	Pass
6.5a	Protective earth conductor has green/yellow insulation	Protective earth conductor was evaluated as part of the power supply.	Pass
6.5c	Only protective or functional earthing, or potential equalization conductors are green/yellow	Evaluated as part of the power supply.	Pass
6.5d	Color of neutral conductor.....:	Appliance inlet provided on Power Supply	N/A
6.5e	Colors of phase conductor(s).....:	Appliance inlet provided on Power Supply	N/A
6.6a	In accordance with ISO ISO/R 32	No gas cylinders or connections	N/A

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict
6.8.2g	Instructions to ensure safe use and adequate maintenance of rechargeable batteries		Pass
6.8.2h	Identification of specified external power supplies or battery chargers necessary to ensure compliance with the requirements of IEC 601-1	POC-123: Hitron Electronics Corp. Model HES49-24021 only. POC-125: XPIQ Inc Model PCM80PS24 or Sinpro Model MPU50-108.	Pass
7	Power Input Measurements	(see appended table 7)	Pass
10.2.2b	Internal replaceable electrical power source specified	The battery pack information is included in the User Manual also states that the battery pack is not user replaceable.	Pass
14.4b	Equipment supplied from external dc source of reverse polarity results in no safety hazard	Power supplies are UL R/C to UL 60601-1	Pass
14.5a	Dual classification for internally powered equipment with a means of connection to supply mains	Power Supplies are Class I. LCD can additionally run off of the battery pack alone.	Pass
14.5b	Internally powered equipment complies with requirements for Class I or Class II equipment while connected to supply mains, and with requirements for internally powered equipment when not connected	Class I only.	Pass
16a	Equipment enclosed to protect against contact with live parts, and with parts which can become live (finger, pin, hook test)		Pass
	Insertion or removal of lamps - protection against contact with live parts provided	No lamps	N/A
16b	Opening in a top cover positioned that accessibility of live parts by a test rod is prevented		N/A
16c	- have a resistance of not more than 0.2 Ohm	No such parts	N/A
16e	- Removal possible only with the aid of a tool		Pass
17a	1) basic insulation: applied part earthed	No applied parts	N/A

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict
17g	5) by protective impedances limiting current to accessible part		Pass
	- Additional leakage current test in single fault conditions	(see appended table 19)	Pass
18e	- Readily accessible	Potential equalization conductor not provided	N/A
18f	For equipment without power supply cord, impedance between protective earth terminal and accessible metal part <= 0.1 Ohm		Pass
	- For equipment with an appliance inlet, impedance between protective earth contact and any accessible metal part <= 0.1 Ohm	(see appended table 18) Evaluated as part of the UL R/C power supply	Pass
18l	- insulation of screens and all internal wiring connected to them is double insulation or reinforced insulation	Class I equipment	N/A
19.1b	Leakage currents	(see appended table 19) All combination of the conditions considered.	Pass
	- earth leakage current	(see appended table 19)	Pass
	- enclosure leakage current	(see appended table 19)	Pass
20	Overall compliance with Clause 20	(see appended table 20)	Pass
21a	Sufficient rigidity of an enclosure tested by: force of 45 N	(see appended table 21)	Pass
21b	Sufficient strength of an enclosure tested by: impact hammer	(see appended table 21)	Pass
22.2a	Moving parts of a transportable equipment are provided with guards which form an integral part of the equipment	No moving parts	N/A
25.1	Protective means are provided where expelled parts of the equipment could be a hazard	No expelled parts	N/A
28.3	Safety device provided where the integrity of a	Not a suspension system.	N/A

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict
	suspension depends on parts which may have hidden defects, or on parts having safety factors not complying with Sub-clause 28.4		
29.2	EQUIPMENT not intended to produce X-radiation produces an exposure <= 130 nC/kg (0.5 mR)	Equipment does not employ a CRT	N/A
36	Equipment complies with IEC 601-1-2	Not evaluated by Underwriters Laboratories Inc. Compliance documented by the manufacturer.	N/A
42.1	Equipment does not attain temperatures exceeding the values given in Table Xa over the range of ambient temperatures per Clause 10.2.1	(see appended table 42)	Pass
44.2	- the equipment is electrically safe after 15% overfill steadily over a period of 1 min	No liquid reservoirs	N/A
44.5	Equipment sufficiently protected against the effects of humidity	(see appended table 44)	Pass
45.2	Pressure vessel with pressure volume greater than 200 kPa x l and pressure greater than 50 kPa withstand the hydraulic test pressure	No pressure vessels or parts	N/A
52.1	Equipment is so designed and manufactured that even in single fault condition no safety hazard as described under 52.4 exists (see 3.1 and Cl. 13)	(see appended table 52) Both normal and single fault condition considered.	Pass
52.5.5	Impairment of cooling: temperatures not exceeding 1.7 times the values of Clause 42 minus 17.5°C	(see appended table 52)	Pass
52.5.9	Failure of one component at a time presents no safety hazard	(see appended table 52)	Pass
56	List of critical components	(see appended table 56.1)	Pass
56.6a	Thermal safety devices provided where necessary to prevent operating temperatures exceeding the limits	Thermal safety devices provided in battery pack.	Pass
	Independent non-self-resetting thermal cut-out provided where a failure of a thermostat could	Provided in battery pack.	Pass

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict
	constitute a safety hazard		
56.8	- to indicate the operation of non-luminous heaters if a safety hazard could result	No heaters	N/A
56.10	Actuating parts of controls	No such parts	N/A
56.10c	- to prevent an unexpected change from maximum to minimum or vice versa where this could produce a safety hazard	No such parts	N/A
56.11a	Contain voltages not exceeding 25 V a.c. or 60 V d.c. and isolated from the mains part by Cl. 17g	No hand-held or foot operated devices	N/A
57.1a	Means for isolation incorporated in equipment or, if external, specified in the accompanying documents	Required power supplies are called out in the User Manual	Pass
57.4	Connection of power supply cords		N/A
57.4b	Power supply cord protected against excessive bending		N/A
57.4c	Adequate space inside equipment to allow the supply cable conductors to be introduced and connected	Evaluated as part of the power supply.	N/A
57.5	Mains terminal devices and wiring of mains part		N/A
57.5b	Terminals closely grouped with any protective earth terminal		N/A
	Mains terminal devices accessible only with use of a tool		N/A
	Mains terminal devices located or shielded that, should a wire of a stranded conductor escape when the conductors are fitted, there is no risk of accidental contact		N/A
57.5c	Internal wiring not subjected to stress when the means for clamping the conductors are tightened or loosened		N/A
57.9.2	The dielectric strength of the electrical insulation of a mains supply transformer such that it passes	Switching power supply	N/A

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict
	tests		
57.9.4a	- one bobbin with insulating partition		N/A
57.9.4e	- at least 2 insulation layers with a total thickness of at least 0.3 mm		N/A
57.10a	Values: compliance with at least the values of Table XVI	(see insulation diagram) Adapter had been evaluated as part of the power supply. The clearance and creapage of Panel PC comply with at least the values of Table XVI.	Pass
59.3	Internal electrical power source provided with device for protection against fire hazard	Thermal protectors are provided on the battery pack	Pass
59.4	Oil containers adequately sealed	No oil containers	N/A

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

56.1	**TABLE: list of critical components**					Pass
Object/part No.	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity	Photo ID, Item # or other sorting identifier
Power Adapter for use with POC-123	Hitron Electronics Corp	HES49-24021	Input 100-240 Vac, 50/60 Hz Output 24 Vdc, 2.1 A	QQHM2	UL R/C	3-01
Alternate Power Adapter for use with POC-125	XPIQ Inc.	PCM80PS24	Input 100-240 Vac, 47-63 Hz Output 24 Vdc, 3.33 A	QQHM2	UL R/C	3-01
Alternate Power Adapter for use with POC-125	Sinpro	MPU50-108	Input 100-240 Vac, 47-63 Hz Output 24 Vdc, 2.08 A	QQHM2	UL R/C	3-01
Enclosure	Chi Mei Corporation	PA-765A	V-0 or better, minumum 2.1mm thick, 80°C min. See Enclosure 4-01 for details.	QMFZ2	UL R/C	4-01
Base	Various	Various	Metal, overall 286 by 193 by 179 mm, weighted 1.75 kg.	N/A	N/A	3-04
PWB	Various	Various	V-1 or better, 105°C min.	ZPMV2	UL R/C	3-03
LCD Panel	IMES Co., Ltd.	M121-53DR	TFT type, SVGA 12.1 inch	N/A	N/A	3-03
Alternate	Tottori SANYO Electric Co., Ltd	MXS121022010	TFT type, SVGA 12.1 inch	N/A	N/A	3-03
Alternate	Tottori SANYO Electric Co., Ltd	TM121SV-22L11A	TFT type, SVGA 12.1 inch	N/A	N/A	3-03
Alternate	AU Optronics Corporation	G121SN01	TFT type, SVGA 12.1 inch	N/A	N/A	3-03
HDD Drive (Optional)	Various	Various	Generic, 5 Vdc, 0.55 A max.	NWQG2	UL R/C	3-03
CD / DVD-ROM / CD-RW Drive (Optional)	Various	Various	Generic, 5 Vdc, 0.9 A, laser Class I	NWQG2	UL R/C	3-03
Lithium Battery	Toshiba Battery Co	CR2032	3 Vdc, Max. Abnormal	BBCV2	UL R/C	3-03

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

	Ltd		Charging Current 10 mA			
Alternate	Rayovac Corp	BR2032	3 Vdc, Max. Abnormal Charging Current 4 mA	BBCV2	UL R/C	3-03
Inverter	Lecerf Technology Co., Ltd	1201-C-1	I/P: 12 V, 1300 mA, Output: 560 Vrms, 5.3 mA	N/A	Suitability of this component determined during this evaluation	4-02
- Transformer (T1, T2) (for Inverter)	Lecerf Technology Co., Ltd	X03	Class 105°C. See Enclosure Diagrams for Construction Details	N/A	Suitability of this component determined during this evaluation	4-02
- Capacitor (C6, C8)	--	--	27 pF, 3000 V	N/A	N/A	4-02
Alternate Inverter	Lecerf Technology Co., Ltd	LV-12DLC-A	Input: 12 V, 1000 mA, Output: 560 Vrms, 6 mA	N/A	Suitability of this component determined during this evaluation	4-02
Alternate Transformer	Lecerf Technology Co., Ltd	X09	Class 105°C. See Enclosure Diagrams for Construction details	N/A	Suitability of this component determined during this evaluation	4-02
Polyswitch (FS5, FS6) (for USB connector)	Tyco Corp. (Raychem)	miniSMDC110	8 Vdc, 1.1 A(Ih), 2.2 A(It)	XGPU2	UL R/C	3-03
Polyswitch (FS7) (for keyboard and mouse connector)	Tyco Corp. (Raychem)	miniSMDC110	8 Vdc, 1.1A (Ih), 2.2A (It)	XGPU2	UL R/C	3-03
Battery Pack for POC-	Advantech	PPC-L126-BP	11.10 V, 4000 mAh	N/A	Suitability of	3-07

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

123					this component determined during this evaluation	
- Battery cell (Li-Ion type) (6 cells provide, 2 parallel, 3 series)	Samsung Sdi Co Ltd	ICR18650-20	3.7 V, 2000 mAh	BBCV2	UL R/C	3-07
- PTC device (polyswitch)	Raychem Corp.	LR4-550	20 Vdc, 5.5 A	XGPU2	UL R/C	3-07
- Fuse Cut-off (TF12)	Uchihashi Estec Co., Ltd.	448	4 A, 50 Vdc, 135°C	XCMQ2	UL R/C	3-07
Battery Pack for POC-125. Consists of items below -	Advantech (Manufactured by: Perfect Source Co., Ltd)	POC-125 (PN 0262AT0125311J)	11.10 V, 2400 mAh	N/A	Suitability of this component determined during this evaluation	3-08
- Battery cell (Li-Ion type) (6 cells provide, 1 parallel, 3 series)	Samsung Sdi Co Ltd	ICR18650-24	2.4 V, 2000 mAh	BBCV2	UL R/C	3-08
- Thermal Cut-off (SCP1)	NEC Schott Components Corp	D6X	12 A, 32 Vdc, 139°C	XCMQ2	UL R/C	3-08
- Thermal Protector (TH1)	Uchiya Thermostat Co., Ltd	BPF2	80°C, 15A, 18V	XAPX2	UL R/C	3-08
Label Material	Various	Various	Minumum 40°C	PGDQ2	UL R/C	3-05
Power Cord	Various	Various	Listed Hospital grade, type SJE, SJT or SJO min. 18AWG, 10A, 60 °C	ELBZ	UL	

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

7	**TABLE: power input**					Pass
Operating condition		Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Remarks
Model POC-125, with P/S XPIQ, Type PCM80PS24		90	47	0.79	71	Alternate main board and battery pack. Battery pack discharged.
		90	63	0.70	71	
		100	47	0.70	72	
		100	63	0.72	70	
		240	47	0.32	72	
		240	63	0.33	72	
		264	47	0.29	72	
		264	63	0.30	72	
Model POC-125, with P/S Sinpro, Type MPU50-108		90	47	1.23	70	Alternate main board and battery pack. Battery pack discharged.
		90	63	1.26	71	
		100	47	1.16	71	
		100	63	1.18	71	
		240	47	0.62	67	
		240	63	0.61	67	
		264	47	0.56	66	
		264	63	0.50	54	
supplementary information:						
Use of Hitron Power Supply Evaluated in E180881-A26.						

18	**TABLE: protective earthing**				Pass
Test location		Test current (A)	Measured voltage (V)	Resistance (ohms)	Remarks
--		--	--	--	Evaluated as part of the Power Supply UL R/C investigation
supplementary information:					

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

19	**TABLE: leakage current**				Pass
Type of leakage current and test condition (including single faults)		Supply voltage (V)	Supply frequency (Hz)	Measured max. value (µA)	Remarks
Earth Leakage Current, Figure 17		--	--	B/A	--
ER, NC (S1, S2, S3=1) S5=1, MD1		264	60	113/115	
ER, NC (S1, S2, S3=1) S5=0, MD1		264	60	123/126	--
ER, SFC; S1=0 (S2, S3, S5=1), MD1		264	60	211/211	--
ER, SFC; S1=0 (S2, S3, S5=0), MD1		264	60	218/220	--
ER, SFC; S2 or S3=0 (S1, S5=1), MD1		264	60	113/116	--
ER, SFC; S2 or S3=0 (S1, S5=0), MD1		264	60	123/125	--
Enclosure Leakage Current, Figure 19		--	--	--	--
EN, NC (S1=1), S5=1, MD1		264	60	61/64	--
EN, NC (S1=1), S5=0, MD1		264	60	64/64	--
EN, SFC: S1=0, S5=1, MD1		264	60	112/114	--
EN, SFC: S1=0, S5=0, MD1		264	60	114/115	--
EN, NC; S1, S2, S3=1, S1, S5=1, MD3		264	60	61/63	--
EN, NC; S1, S2, S3=1, S1, S5=0, MD3		264	60	62/64	--
EN, SFC; S1=0, (S2, S3=1), S5=1, MD3		264	60	115/115	--
EN, SFC; S1=0, (S2, S3=1), S5=0, MD3		264	60	115/116	--
EN, SFC: S2 or S3=0, (S1=1), S5=1, MD3		264	60	61/62	--
EN, SFC: S2 or S3=0, (S1=1), S5=0, MD3		264	60	61/62	--
EN, SFC: (S1, S2, S3=1), S5=1, MD3		264	60	61/62	--
EN, SFC: (S1, S2, S3=1), S5=0, MD3		264	60	62/62	--
EN, NC (S1, S2, S3=1), S5=1, MD4		264	60	40/42	--
EN, NC (S1, S2, S3=1), S5=0, MD4		264	60	40/42	--
EN, SFC: S1=0, (S2, S3=1), S5=1, MD4		264	60	55/55	--
EN, SFC: S1=0, (S2, S3=1), S5=0, MD4		264	60	55/56	--
EN, SFC: S2 or S3=0, (S1=1), S5=1, MD4		264	60	40/41	--
EN, SFC: S2 or S3=0, (S1=1), S5=0, MD4		264	60	40/42	--
EN, SFC: (S1, S2, S3=1), S5=1, MD4		264	60	40/42	--
EN, SFC: (S1, S2, S3=1) S5, MD4		264	60	40/41	--
Type of Leakage current and test condition		--	--	--	--
Plastic EN to metal part		12.6Vdc	--	4.0/5.0	Internal powered by battery pack, and adapter is not connected to unit.
Metal Part to Metal Part		12.6Vdc	--	4.0/5.0	Internal powered by battery pack, and adapter is not connected to unit.
Enclosure Leakage Current: Alternate LCD Panel with inverter		--	--	--	Alternate Panel Model: G121SN01. Inverter Model: LV-12DLC-A
EN, NC, S1 = 1, S5 = N, S7 = 1		264	60	3.0	MD1 between Touch

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

				Screen and Earth
EN, NC, S1 = 1, S5 = R, S7 = 1	264	60	2.0	MD1 between Touch Screen and Earth
EN, SFC (Neutral Open), S1 = 0, S5 = N, S7 = 1	264	60	4.0	MD1 between Touch Screen and Earth
EN, SFC (Neutral Open), S1 = 0, S5 = R, S7 = 1	264	60	4.0	MD1 between Touch Screen and Earth
EN, SFC (Ground Open), S1 = 1, S5 = N, S7 = 0	264	60	10.0	MD1 between Touch Screen and Earth
EN, SFC (Ground Open), S1 = 1, S5 = R, S7 = 0	264	60	10.0	MD1 between Touch Screen and Earth
EN, SFC (SC HV to LV DC inverter), S1 = 1, S5 = N	264	60	3.0	17g.5 MD1 between front panel and earth
EN, SFC (SC HV to LV DC inverter), S1 = 0, S5 = R	264	60	3.0	17g.5 MD1 between front panel and earth
EN, SFC (SC HV to LV DC inverter), S1 = 1, S5 = N	264	60	3.0	17g.5 MD1 between plastic enclosure and earth
EN, SFC (SC HV to LV DC inverter), S1 = 0, S5 = R	264	60	3.0	17g.5 MD1 between plastic enclosure and earth
EN, NC, S1 = 1, S5 = N, S7 = 1	264	60	3.0	MD1 between Touch Screen and Earth
Enclosure and Single Fault Conditions for POC-125	--	--	--	Tested with Sinpro, MPU50-108 power supply to represent worst case
EN, NC, S1 = 1, S5 = N, S7 = 1	264	47	1.5	MD1 between Plastic Enclosure and Earth
EN, NC, S1 = 1, S5 = R, S7 = 1	264	47	1.1	MD1 between Plastic Enclosure and Earth
EN, SFC (Neutral Open), S1 = 0, S5 = N, S7 = 1	264	47	1.3	MD1 between Plastic Enclosure and Earth
EN, SFC (Neutral Open), S1 = 0, S5 = R, S7 = 1	264	47	1.2	MD1 between Plastic Enclosure and Earth
EN, SFC (Ground Open), S1 = 1, S5 = N, S7 = 0	264	47	5.9	MD1 between Plastic Enclosure and Earth
EN, SFC (Ground Open), S1 = 1, S5 = R, S7 = 0	264	47	5.1	MD1 between Plastic Enclosure and Earth
EN, SFC, S1 = 1, S5 = N, S7 = 1 Short Battery to Ground (CN1 P6/7 to P1/2)	264	47	1.1	MD1 between Plastic Enclosure and Earth. Tested with new battery pack POC125
EN, SFC, S1 = 1, S5 = R, S7 = 1 Short Battery to Ground (CN1 P6/7 to P1/2)	264	47	1.0	MD1 between Plastic Enclosure and Earth. Tested with new battery pack

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

				POC125

supplementary information:

Tests conducted for Model POC-123: Power Adapter: Hitron, Model: HES49-24021, Battery: Samsung Sdi Co Ltd, Model ICR18650-20. Battery is charging when tests coducted. Tests conducted for Model POC-125: Power Adaptor, Sinpro MPU50-108, battery pack POC125.

ER - Earth leakage current
EN - Enclosure leakage current
P - Patient leakage current
PM - Patient leakage current with mains on the applied parts
PA - Patient auxiliary current
Fig. 15 - refers to Fig. 15 in IEC601-1
MD - Measuring device

A - After humidity conditioning
B - Before humidity conditioning
1 - Switch closed or set to normal polarity
0 - Switch open or set to reversed polarity
NC - Normal condition
SFC - Single fault condition

42	**TABLE: normal temperature**	Pass
Supply voltage: See Below Ambient temperature: See Below	Test Condition: See Below	

Measuring location	Measured temperature (°C)	Remarks
POC-125, with battery pack POC125 and SinproMPU50-108 power adaptor	90V, 63 Hz	Battery Pack fully discharged. USB's loaded to 5V
Ambient	23	
Cell 1	56	
Cell 2	56	
Cell 3	55	
Thermal cutoff (SCP1)	57	
Thermostat (BPF2)	55	
Q1 body	56	
Q2 Body	56	
U3 body	56	
POC-125, with battery pack POC125 and SinproMPU50-108 power adaptor	90V, 63 Hz	Impairment of Cooling. Blocked Vents. Battery Pack fully discharged. USB's loaded to 5V
Ambient	23	
Cell 1	59	
Cell 2	60	
Cell 3	59	
Thermal cutoff (SCP1)	61	
Thermostat (BPF2)	59	
Q1 body	60	

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

Q2 Body	60	
U3 body	59	
Enclosure inside above battery pack	42	
Enclosure outside above battery pack	31	
COR - indicates measurements taken using change-of-resistance method		
supplementary information: Model POC-123, with Hitron Power Adaptor Evaluated in E180881-A26.		

52	**TABLE: abnormal operation**	Pass
Test type, condition and clause reference	Observed results	Remarks
Abnormal Testing of POC-125 below was conducted with Tested with Sinpro, MPU50-108 power supply and battery pack POC125	--	--
Short Circuit, D3 Battery Charger Circuit: Battery fully discharged. Tested during recharging	Vpk= 264 (rated input did not change) Ipk= 0.030 to 0.067 (cycle) Elapsed Time= 1 sec Components Damaged: None	How test terminated: Unit cycle protection operated immediately
Short Circuit, U3 (P1-P8) Battery Charger Circuit: Battery fully discharged. Tested during recharging	Vpk= 264 (rated input did not change) Ipk= 0.037 to 0.075 (cycle) Elapsed Time= 1 hour Components Damaged: None	Cell Temp = 28°C Thermal Protector Temp= 39°C Ambient = 23°C How test terminated: Unit cycle protection operated immediately. Test continued until battery fully charged.
Short Circuit, D7 Battery Charger Circuit: Battery fully discharged	Vpk=264 (rated input did not change) Ipk= 0.082 to 0.358 Elapsed Time= 1 hour Components Damaged: None	Cell Temp = 37°C Thermal Protector Temp= 38°C Ambient = 22°C How test terminated: Unit cycle protection operated immediately. Test continued until battery fully charged.
Short Circuit Q1 (P2-P8) Battery Pack Circuit: Battery full charged	Vpk = 11.32V Ipk = 0.035A Elapsed Time= 5 sec Components Damaged: None	How test terminated: Battery operated normally. Same condition as temperature test so test not continued

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

Short Circuit U1 (P18-P17) Battery Pack Circuit: Battery Pack fully charged	Vpk = 11.39V Ipk = 0.010A Elapsed Time= 45 minutes Components Damaged: None	Cell Temp = 58°C Thermal Protector Temp=62°C Ambient = 22°C How test terminated: Test continued thermal equilibrium
56.7- REVERSED BATTERY CONNECTION. Battery Pack fully charged	Test time: 1 second How Test Terminated: No operation.	Test terminated after confirming no battery operation
56.7- REVERSED BATTERY CONNECTION. Battery Pack fully discharged	Temp of Cells: 49°C Temp of Thermal Protector: 50°C	Test time: 5 hrs How Test Terminated: Thermal Stability, battery fully charged
supplementary information: Model POC-123 with Hitron Power Adaptor Evaluated in E180881-A26.		

Enclosure

National Differences

(Total 3 Pages including this Cover Page)

Canada
USA

IEC 60601			
SubClause	Difference + Test	Result - Remark	Verdict
USA - Differences to IEC 60601-1:1988 + A1:1991 + A2:1995			
6.6a	Identification of the content of gas cylinders in accordance with the color coding requirement of ANSI/NFPA99.	No gas cylinders or connections	N/A
6.8	Cord-connected equipment provided with instructions to indicate type of attachment plug for alternate voltage	Power supply cord appropriate for expected voltage provided with equipment.	N/A
14	Fixed equipment and permanent equipment is Class I	Not fixed or permanent equipment	N/A
19	Enclosure and earth leakage currents comply with U.S. limits	(see appended table 19)	Pass
22	When risk of injury can occur, end stops are provided	No moving parts	N/A
22.7a	Emergency off switch has red actuator	No such parts	N/A
56.3a	Connector, pin, plug attached to patient connected lead or contact cannot engage any part on the equipment, including separable cord set	No patient connections	N/A
57	Permanently connected equipment provided with field wiring provision in accordance with NEC, ANSI/NFPA 70	Transportable equipment.	N/A
57.5b	If leads are provided for connection to branch circuit, the free end is in separate compartment		N/A
57.5b	If leads are provided for connection to branch circuit, the free length of leads inside field-wiring compartment is at least 152 mm long		N/A
400.1	At least one of the following three requirements is satisfied:	Not for use in Oxygen rich atmospheres	N/A

IEC 60601			
SubClause	Difference + Test	Result - Remark	Verdict

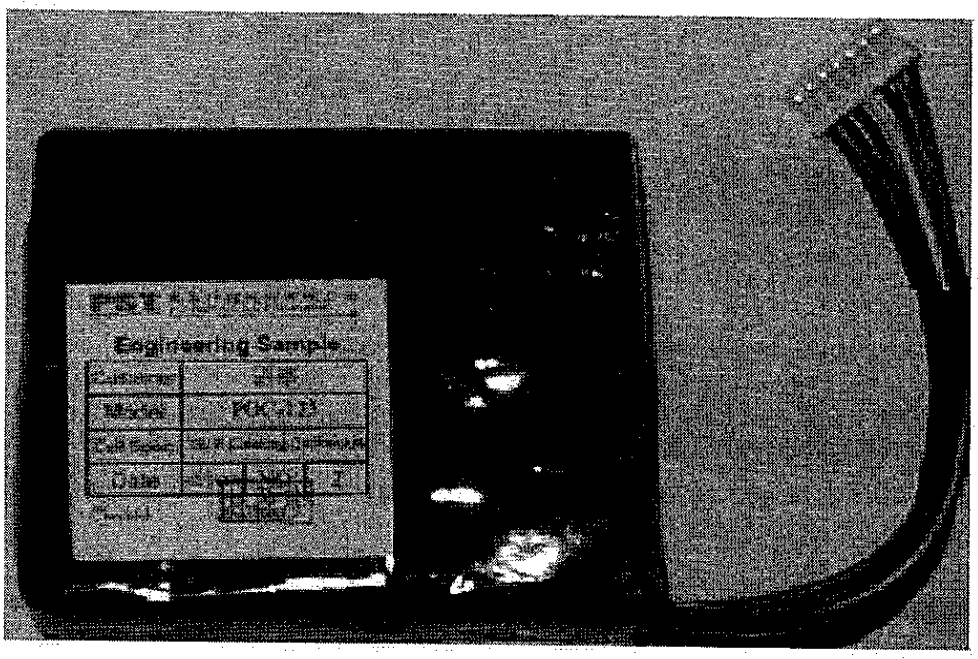
Canada - Differences to IEC 60601-1:1988 + A1:1991 + A2:1995			
6.61	- is gas specific	No gas cylinders or connections	N/A
56.3a	- are gas specific	No medical gas connections.	N/A
57.2g	- if molded on type - hospital grade complying with CSA C22.2, No. 21		Pass
57.2g	- hospital grade disassembly type complying with CSA C22.2, No. 42		N/A
57.9	Canadian difference to this clause no longer applicable		N/A
58.2	Canadian difference to this clause no longer applicable		N/A
60	Canadian difference to this clause no longer applicable		N/A

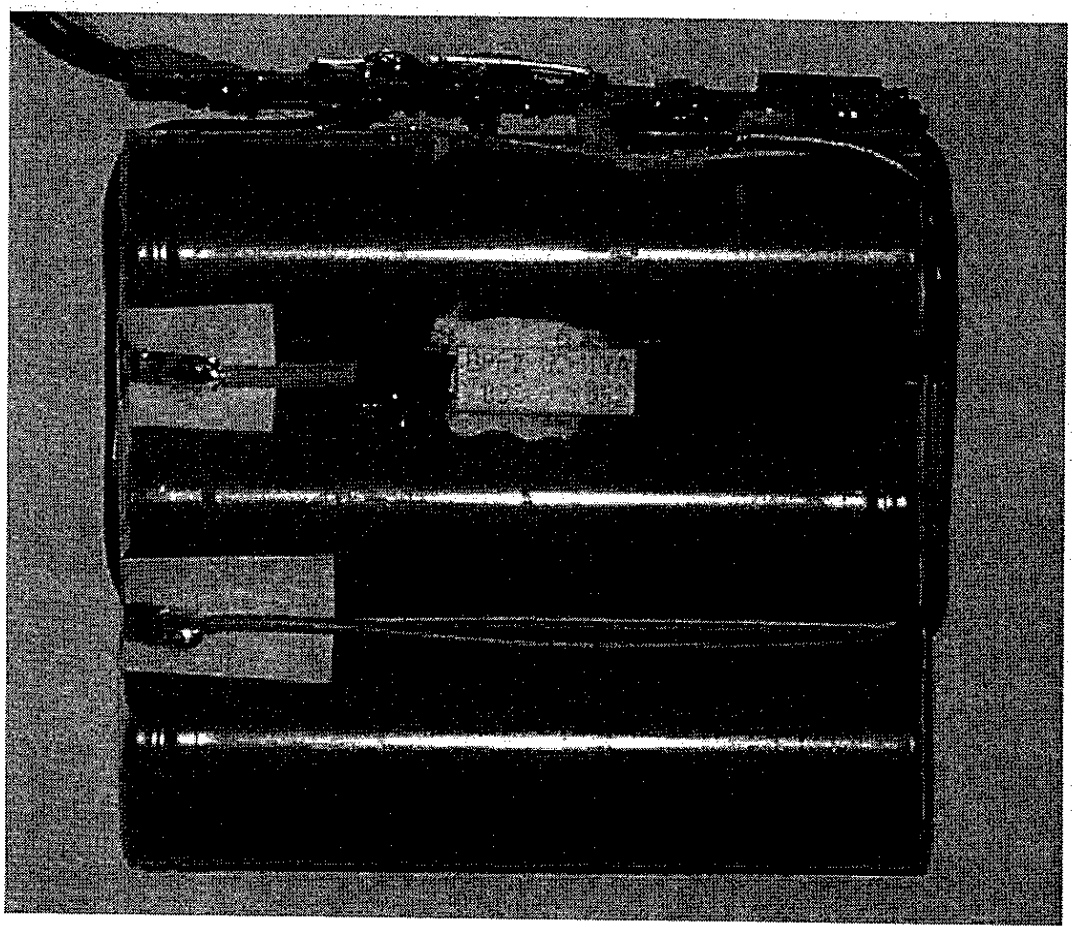
Enclosure

Photographs

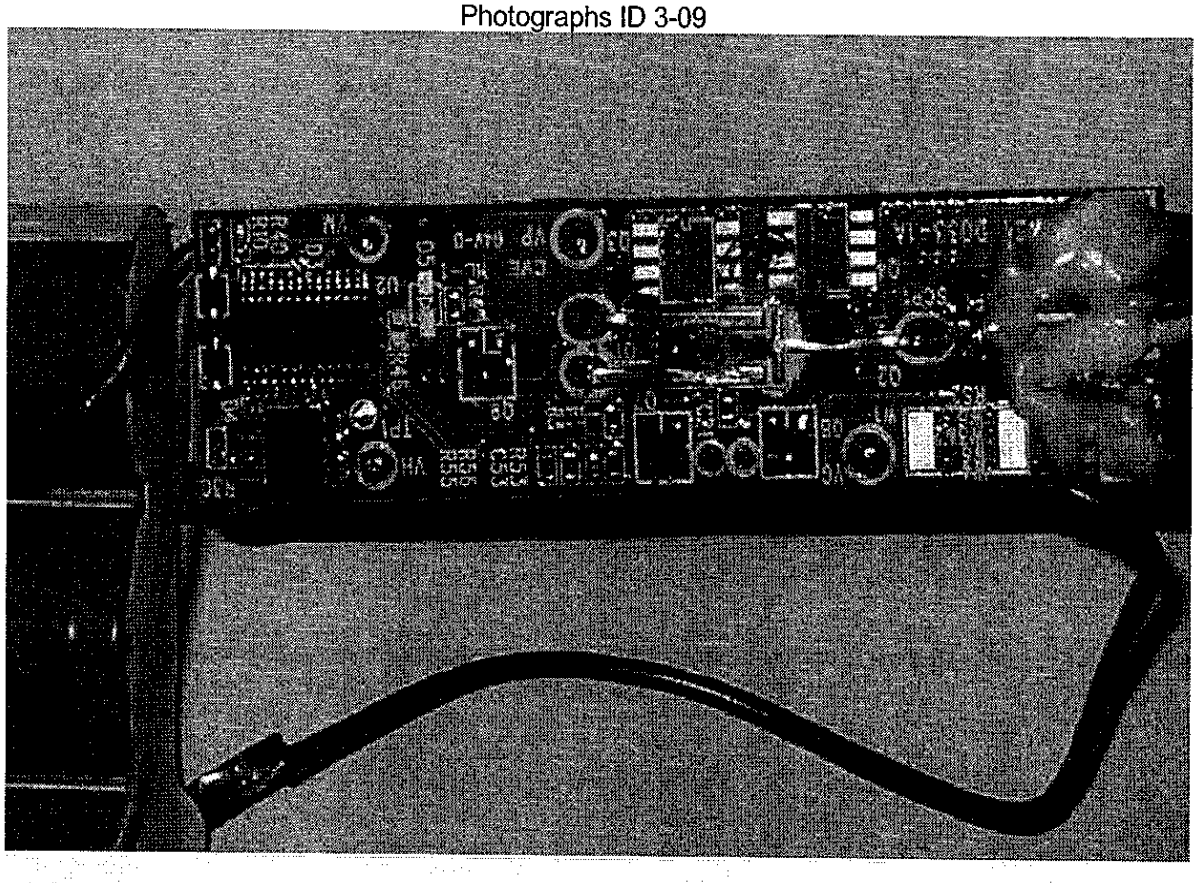
Supplement Id	Description
3-01	Front View
3-02	Rear View
3-03	Inside View
3-04	Base
3-05	Battery front view
3-06	Battery rear view
3-07	Battery inside view
3-08	Battery Pack for use with POC125
3-09	New Battery Pack PCB, for use with POC125
3-10	POC-125 Rear View with new battery pack

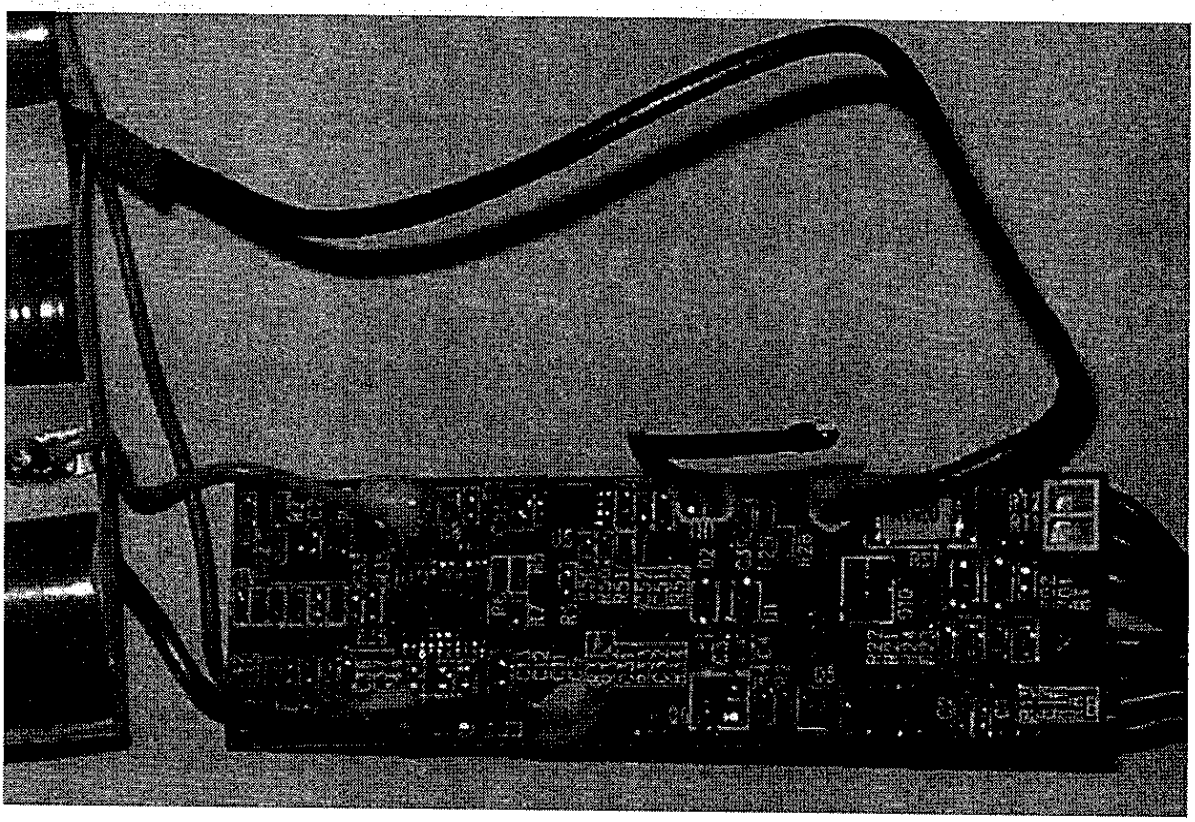
Photographs ID 3-08





Photographs ID 3-09





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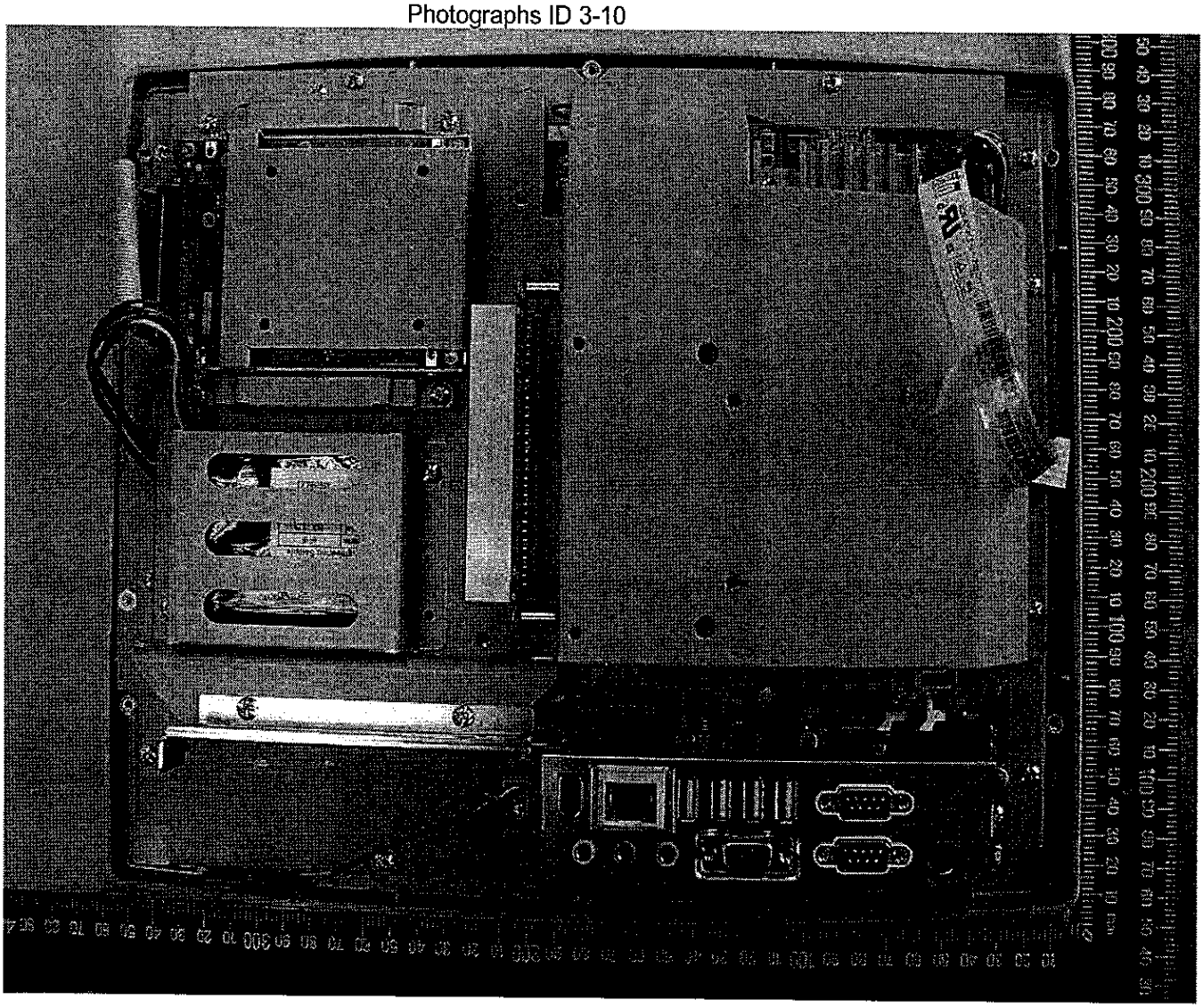

Enclosure

Manuals

Supplement Id	Description
6-01	Manual

Enclosure

Test Record

Description
Test Record 1
Test Record 2
Datasheets
Construction Review Datasheet
Test Record 3
POC-125 Datasheets
Construction Review Datasheet

Test Record No. 3

The following tests were conducted:

Test	Comments
Power Input (7.1)	
Leakage Current (19)	
Temperature (42)	
Abnormal Operation and Fault Conditions (52)	
Reversed Battery Connection (56.7)	

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard.

The manufacturer submitted representative production sample(s) of POC-125xxxxxxxx.

Due to similarity to Model POC-123xxxxxxxx for this manufacturer, only the tests listed above were considered necessary to add Model POC-125xxxxxxxx with alternate external power supply sources and battery pack.

The preceeding tests conducted in accordance with UL 60601-1 were considered representative of the same tests required by Canadian National Standard, CAN/CSA C22.2 No. 601.1