

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-S175XXXXXXXXX and POC-S155XXXXXXXXX where X is any alphanumeric character or blank
Rating(s):	POC-S175XXXXXXXXX: Power supply: 100-240 V~, 1.1-0.45 A, 47-63 Hz; Output: 24V, 3.33 A PC: 24 VDC, 3 A POC-S155XXXXXXXXX: Power supply: 100-240 V~, 1.1-0.45 A, 47-63 Hz; Output: 24 V, 3.33 A or 100-240 V~, 1.35-0.8 A, 47-63 Hz; Output: 24 V, 2.08 A PC: 24 VDC, 2 A Optional Battery Pack: 11.1 Vdc, 4000mAH
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: <ol style="list-style-type: none">1. Specific Technical Criteria2. Critical Components3. Test Results4. Enclosures	

Issue Date: 2005-02-04
Amendment 1 2005-11-17

Page 2 of 2

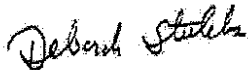
Report Reference #

E214164-A8-UL-1

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.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

Test Report By:



Deborah Stubbs
Senior Project Engineer
Underwriters Laboratories Inc.

Reviewed By:



Dean Klubnik
Senior Project Engineer
Underwriters Laboratories Inc.

SPECIFIC TECHNICAL CRITERIA

TEST REPORT UL 60601-1 Medical Electrical Equipment Part 1: General requirements for safety	
Report Reference No.....	E214164-A8-UL-1
Compiled by	Deborah Stubbs
Reviewed by	Dean Klubnik
Date of issue	2005-02-04
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-S175XXXXXXXXX and POC-S155XXXXXXXXX where X is any alphanumeric character or blank
Rating(s)	POC-S175XXXXXXXXX: Power supply: 100-240 V~, 1.1-0.45 A, 47-63 Hz; Output: 24V, 3.33 A PC: 24 VDC, 3 A POC-S155XXXXXXXXX: Power supply: 100-240 V~, 1.1-0.45 A, 47-63 Hz; Output: 24 V, 3.33 A or 100-240 V~, 1.35-0.8 A, 47-63 Hz; Output: 24 V, 2.08 A PC: 24 VDC, 2 A Optional Battery Pack: 11.1 Vdc, 4000mAH

GENERAL INFORMATION

Test item particulars (see also clause 5):

Classification of installation and use : Portable or Fixed
Supply connection : Appliance coupler
Accessories and detachable parts included in the evaluation : None
Options included : Equipment may be mounted on wall or on stand.

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 LCD PC for Medical use.

CC1.0 Model Differences

CC1.1 Models POC-S175XXXXXXXXX and POC-S155XXXXXXXXX where X is any alphanumeric character or blank for marketing purposes are identical except for size and ratings. Either model may also include the optional battery pack.

CD1.0 Additional Information

CD1.1	<p>LCD PC may be mounted on an external arm.</p> <p>This report was modified with Amendment 1 to include an optional battery pack and alternate main board. Appended Tables 7, 19, 42, and 52 were modified to include supporting data. Enclosure Schematics was added for Battery Pack and Charger Circuit drawings.</p>	
CE1.0	Technical Considerations	
CE1.1	The product was investigated to the following additional standards:	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); UL 60601-1 (National Differences for USA) (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 36, Electromagnetic Compatibility (IEC 601-1-2), Clause 48, Biocompatibility (ISO 10993-1), Clause 52.1, Programmable Electronic Systems (IEC 601-1-4)
CE1.3	The product is Classified only to the following hazards:	Casualty, Fire, Shock
CE1.4	The degree of protection against harmful ingress of water is:	Ordinary
CE1.5	The following accessories were investigated for use with the product:	Stand Mount and Arm Mount
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

TABLE: list of critical components						
56.1	Object/part No.	Manufacturer/ trademark	type/model	technical data	Product Category CCN(s)	Required Marks of Conformity
	External Power Supply (used with all models)	XPIQ Inc.	PCM80PS24	Input: 100-240 Vac, 11-0.45 A, 47-63 Hz. DC Output: 24 Vdc, 3.33 A max.	QQHM2	UL R/C
	Alternate (only used with model POC- S155XXXXXXX)	Sinpro	MPU50-108	Input: 100-240 Vac, 1.35-0.8A, 47-63 Hz. DC Output: 24 Vdc, 2.08 A max.	QQHM2	UL R/C
	PWB	Various	Various	V-1 or better , 105°C min.	ZPMV2	UL R/C
	Enclosure material	GE Plastics	C2800	V-0, 80°C min. For model POC- S175, overall 436.5 x 376.5 x 83.6 mm, 3.1 mm thickness. For model POC-S155, overall 417.5 x 342.3 x 83.5 mm, 3.1 mm thickness. Secured to rear enclosure by screws.	QMFZ2	UL R/C
	LCD Panel	AU Optonics Couporation	G150XG01	TFT type, XGA 15 inch	NWQG2	UL R/C
	Alternate	AU Optonics Couporation	M150XN07	TFT type, XGA 15 inch	NWQG2	UL R/C
	Alternate	AU Optonics Couporation	M170EG01	TFT type, SXGA 17 inch	NWQG2	UL R/C
	HDD Drive (Optional)	Various	Various	5Vdc, 0.55A max.	NWQG2	UL R/C
	Lithium Battery (BT1)	Rayovac	BR2032	3 V, 195 mAh. Max. Abnormal Charging Current 5 mA. Reverse current protection by series circuit of Diode (DD1) and resistor (R184), rated 1kOhm. Not user	BBCV2	UL R/C, CSA 3-03

IEC 60601		
Clause	Requirement + Test	Result - Remark
		Verdict

Alternate	Matsushita Electric Industrial Co Ltd. Panasonic Corp Of North America	BR2032	replacable. Same as above	BBCV2	UL R/C, CSA	3-03
Inverter	Lecerf Technology Co., Ltd	LV-1701LC-A	I/P: 12V, 1.8A, Output: 680Vrms, 13mA.	--	Evaluated to the requirements of UL 60601-1 as part of this investigation	3-03
Transformer (T1, T2)	Lecerf Technology Co., Ltd	X08-C-1	105°C	-	Evaluated to the requirements of UL 60601-1 as part of this investigation	3-03
Inverter	Lecerf Technology Co., Ltd	LV-1201-D	13V, 1300mA, max. O/P volt: 750Vrms max. open Volt: 1400Vrms	--	Evaluated to the requirements of UL 60601-1 as part of this investigation	3-03
Transformer (T1, T2)	Lecerf Technology Co., Ltd	X03	105°C	--	Evaluated to the requirements of UL 60601-1 as part of this investigation	3-03
Polyswitch (F1, F2 for	Polytronics	SMD1812P110TT	6 Vdc max., 1.1 A	XGPU2	UL R/C	3-03

IEC 60601		
Clause	Requirement + Test	Result - Remark
		Verdict

USB connector, FS5 for PS2 connector)	Technology Corp.	S					
Alternate	Polytronics Technology Corp.	SMD1812P260TS	6 Vdc max. , 2.6 A	XGPU2	UL R/C	3-03	
Speaker Label	Various	Various	4 ohm, 1 W	--	--	3-01	
	LI YI Industrial Co. Ltd.	LY-101	Maximum temperature 80°C	PGDU2	UL R/C. Evaluated to the requirements of UL 60601-1 as part of this investigation	3-01	
Alternate main board	Adventech	PCM-9686S	See Enclosure Schematics, 5-03, for drawing. For use with alternate battery pack as described below	ZPMV2	UL R/C (PWB)	3-07	
Optional Battery Pack - Includes the components below:	Advantech	POC-S155 or -S175	11.1Vdc, 4000 mAh. See Enclosure Schematics, 5-01 and 5-02, for more information	N/A	Evaluated to the requirements of UL 60601-1 as part of this investigation	3-05	
Battery Pack - PWB	Various	Various	V-1, 105 °C min.	ZPMV2	UL R/C	3-06	
Battery cells (Li-Ion type)	Samsung	ICR18650-22	DC 3.7V, typical 2200mAh. 2 in parallel, 3 in series.	BBCV2	UL R/C, CSA	3-06	
Battery Pack - Connector	Various	Various	30V min., 5A min.	ECBT	UL R/C, CSA	3-07	
Battery Pack - Thermostat (SCP1)	UCHIYA THERMOSTAT CO LTD	BPF2	100 °C, 10A	XAPX2, XAPX8	UL R/C, CSA	3-06	
Battery Pack - Thermal Cutoff (Connected to cell	NEC SCHOTT COMPONENTS	D6	139 °C, 10A min.	XCMQ2	UL R/C, CSA	3-06	

IEC 60601		
Clause	Requirement + Test	Result - Remark
		Verdict

by solder.)	CORP	D6X	139 °C, 12A	XCMQ2	UL R/C, CSA	3-06
Alternate - Battery Pack - Thermal Cutoff (Connected to cell by solder.)	NEC SCHOTT COMPONENTS CORP					
Transistor (Q1-Q4)	Various (Toshiba)	Various (TCP8111)	Min. 24V, min. 1W	N/A	N/A	3-06
Battery Pack Cover Tape/label	Various	Various	Min. V-0, 40°C	QMFZ2	UL R/C	3-06
General UL Requirements:	--	--	--	--	--	--
Corrosion Protection	-	-	All ferrous metal parts are protected against corrosion by painting, plating or equivalent means.	-	-	
Internal Wiring	-	-	Except where noted, all internal wiring is R/C (AVLV2), and rated minimum 300 V, 80°C. All wiring is routed away from sharp edges and/or moving parts and/or parts operating at elevated temperatures.	-	-	
Electrical Connections	-	-	Except as noted, internal wiring terminates in Listed or R/C (ZMVB2), crimped on closed loop or spade with upward or inward turned end type connectors for securing under screw terminals or Listed or R/C (ZMVB2), quick disconnect type connectors with positive detent.	-	-	
Connectors	-	-	Except where noted, all connectors in primary circuits	-	-	

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

Insulating Tubing and Sleeving	-	-	are R/C (RTRT2).	Unless otherwise noted all insulating tubing is R/C (YDPU2), or (YDQS2), or sleeving (UZCW2), rated minimum 300 V, 80°C.	-	-
Solder Connections	-	-	-	All solder connections are made mechanically secure before soldering.	-	-
Wire Positioning Devices	-	-	-	Unless otherwise noted, all wire positioning devices are R/C (ZODZ2), rated minimum 60°C. (Examples: cable ties, wire positioning mounts and bundling straps.) Adhesive-backed types shall be suitable for application to the surface involved.	-	-
Accompanying Documents	-	-	-	Each unit is shipped with operating instructions, a technical description and an address to which the user can refer. Accompanying documents contain all applicable classifications of the product, all warning statements and explanation of warning symbols.	-	-
Markings	-	-	-	Except where noted, required markings on the product shall be located where visible after installation without the use of a tool. Good contrast is maintained between the	-	-

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict
		lettering and the background material. The signal word such as "WARNING, "CAUTION" or "DANGER" must be in capital letters, minimum 2.8 mm (7/64 in.) high. The rest of the marking shall consist of upper and lower case letters not less than 1.6 mm (1/16 in.) high based on upper case letters.	

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-S155, with P/S Sinpro, Type MPL150-108	90	47	0.942	48		
	90	63	0.947	48		
	100	47	0.873	48		
	100	63	0.873	48		
	240	47	0.433	45		
	240	63	0.421	48		
	264	47	0.408	47		
	264	63	0.396	48		
Model POC-S155, with P/S XPIQ, Type PCM80PS24	90	47	0.559	50		
	90	63	0.576	50		
	100	47	0.508	50		
	100	63	0.520	50		
	240	47	0.241	53		
	240	63	0.241	53		
	264	47	0.226	53		
	264	63	0.226	54		
Model POC-S175, with P/S XPIQ, Type PCM80PS24	90	47	0.740	67		
	90	63	0.736	66		
	100	47	0.668	66		
	100	63	0.656	65		
	240	47	0.289	66		
	240	63	0.304	68		
	264	47	0.284	67		
	264	63	0.289	67		
Model POC-S155, with P/S Sinpro, Type MPL150-108	90	47	0.97	54	Alternate main board and battery pack. Test conducted while charging a depleted battery pack.	
	90	63	0.98	54		
	100	47	0.89	53		
	100	63	0.90	53		
	240	47	0.47	48		
	240	63	0.47	50		
	264	47	0.45	50		

IEC 60601					
Clause	Requirement + Test			Result - Remark	Verdict
	264	63	0.45	52	
Model POC-S155, with P/S XPIQ, Type PCM80PS24	90	47	0.68	60	Alternate main board and battery pack. Test conducted while charging a depleted battery pack.
	90	63	0.68	61	
	100	47	0.60	60	
	100	63	0.61	60	
	240	47	0.28	62	
	240	63	0.28	62	
	264	47	0.25	62	
	264	63	0.26	61	
Model POC-S175, with P/S XPIQ, Type PCM80PS24	90	47	0.92	81	Alternate main board and battery pack. Test conducted while charging a depleted battery pack.
	90	63	0.91	82	
	100	47	0.80	80	
	100	63	0.81	81	
	240	47	0.36	79	
	240	63	0.37	81	
	264	47	0.33	81	
	264	63	0.34	81	

supplementary information:

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
Model POC-S175, with P/S XPIQ, Type PCM80PS24					
ER, NC, S8=1, S1=1, S2=1, S3=1, S5=N		264	63	218	MD1
ER, NC, S8=1, S1=1, S2=1, S3=1, S5=R		264	63	218	MD1
ER, SFC, S8=1, S1=0, S2=1, S3=1, S5=N		264	63	433	MD1
ER, SFC, S8=1, S1=0, S2=1, S3=1, S5=R		264	63	433	MD1
ER, SFC, S8=1, S1=1, S2/S3=0 S5=N		264	63	224	MD1
ER, SFC, S8=1, S1=1, S2/S3=0, S5=R		264	63	429	MD1
EN, NC, S1=1, S8=1, S5=N		264	63	4	MD1
EN, NC, S1=1, S8=1, S5=R		264	63	4	MD1
EN, SFC, S1=0, S8=1, S5=N		264	63	4	MD1
EN, SFC, S1=0, S8=1, S5=R		264	63	4	MD1

IEC 60601				
Clause	Requirement + Test	Result - Remark		Verdict
EN, NC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	45	MD3
EN, NC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	43	MD3
EN, SFC, S8=1, S1=0, S2=1, S3=1, S5=N	264	63	67	MD3
EN, SFC, S8=1, S1=0, S2=1, S3=1, S5=R	264	63	67	MD3
EN, SFC, S8=1, S1=1, S2/3=0, S5=N	264	63	46	MD3
EN, SFC, S8=1, S1=1, S2/3=0, S5=R	264	63	45	MD3
EN, SFC, S8=0, S1=1, S2=1, S3=1, S5=N	264	63	196	MD3
EN, SFC, S8=0, S1=1, S2=1, S3=1, S5=R	264	63	198	MD3
EN, NC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	2	MD4
EN, NC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	2	MD4
EN, NC, S8=1, S1=0, S2=1, S3=1, S5=N	264	63	2	MD4
EN, SFC, S8=1, S1=0, S2=1, S3=1, S5=R	264	63	2	MD4
EN, SFC, S8=1, S1=1, S2/3=0, S5=R	264	63	2	MD4
EN, SFC, S8=0, S1=1, S2=1, S3=1, S5=N	264	63	2	MD4
EN, SFC, S8=0, S1=1, S2=1, S3=1, S5=N	264	63	2	MD4
EN, SFC, S8=0, S1=1, S2=1, S3=1, S5=R	264	63	2	MD4
After short HV to LV of inverter				
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	41	MD3
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	40	MD3
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	2	MD4
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	3	MD4
After short HV to chassis				
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	42	MD3
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	40	MD3
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	2	MD4
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=R			2	MD4
Model POC-S155, with P/S XPIQ, Type PCM80PS24				
ER, NC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	187	MD1
ER, NC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	183	MD1
ER, SFC, S8=1, S1=0, S2=1, S3=1, S5=N	264	63	358	MD1
ER, SFC, S8=1, S1=0, S2=1, S3=1, S5=R	264	63	357	MD1
ER, SFC, S8=1, S1=1, S2/S3=0 S5=N	264	63	186	MD1
ER, SFC, S8=1, S1=1, S2/S3=0, S5=R	264	63	187	MD1
EN, NC, S1=1, S8=1, S5=N	264	63	3	MD1
EN, NC, S1=1, S8=1, S5=R	264	63	3	MD1
EN, SFC, S1=0, S8=1, S5=N	264	63	3	MD1
EN, SFC, S1=0, S8=1, S5=R	264	63	3	MD1
EN, NC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	38	MD3
EN, NC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	40	MD3
EN, SFC, S8=1, S1=0, S2=1, S3=1, S5=N	264	63	54	MD3
EN, SFC, S8=1, S1=0, S2=1, S3=1, S5=R	264	63	69	MD3
EN, SFC, S8=1, S1=1, S2/3=0, S5=N	264	63	38	MD3
EN, SFC, S8=1, S1=1, S2/3=0, S5=R	264	63	38	MD3
EN, SFC, S8=0, S1=1, S2=1, S3=1, S5=N	264	63	172	MD3
EN, SFC, S8=0, S1=1, S2=1, S3=1, S5=R	264	63	172	MD3

IEC 60601				
Clause	Requirement + Test	Result - Remark		Verdict
EN, NC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	2	MD4
EN, NC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	2	MD4
EN, NC, S8=1, S1=0, S2=1, S3=1, S5=N	264	63	2	MD4
EN, SFC, S8=1, S1=0, S2=1, S3=1, S5=R	264	63	3	MD4
EN, SFC, S8=1, S1=1, S2/3=0, S5=R	264	63	2	MD4
EN, SFC, S8=0, S1=1, S2=1, S3=1, S5=N	264	63	2	MD4
EN, SFC, S8=0, S1=1, S2=1, S3=1, S5=N	264	63	1	MD4
EN, SFC, S8=0, S1=1, S2=1, S3=1, S5=R	264	63	1	MD4
After short HV to LV of inverter				
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	36	MD3
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	41	MD3
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	2	MD4
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	2	MD4
After short HV to chassis				
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	36	MD3
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	35	MD3
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=N	264	63	2	MD4
EN, SFC, S8=1, S1=1, S2=1, S3=1, S5=R	264	63	2	MD4
Model POC-S175 with alternate main board and battery pack. Tested with power supply, XPIQ, PCM80PS24	--	--	--	--
EN, NC, S1 = 1, S5 = N, S7 = 1	264	47	1.7	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	2.1	MD1 between Plastic Enclosure and Earth
EN, SFC (Neutral Open), S1 = 0, S5 = R, S7 = 1	264	47	2.2	MD1 between Plastic Enclosure and Earth
EN, SFC (Ground Open), S1 = 1, S5 = N, S7 = 0	264	47	19.9	MD1 between Plastic Enclosure and Earth
EN, SFC (Ground Open), S1 = 1, S5 = R, S7 = 0	264	47	19.9	MD1 between Plastic Enclosure and Earth
EN, SFC, S1 = 1, S5 = N, S7 = 1 Short Battery to Ground (CN14 P6/7 to P1/2)	264	47	1.5	MD1 between Plastic Enclosure and Earth
EN, SFC, S1 = 1, S5 = R, S7 = 1 Short Battery to Ground (CN14 P6/7 to P1/2)	264	47	1.1	MD1 between Plastic Enclosure and Earth
supplementary information: 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				

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

42	TABLE: normal temperature		Pass
Supply voltage: See below Ambient temperature: See below		Test Condition: See below	
Measuring location		Measured temperature (°C)	Remarks
Model POC-S175, with P/S XPIQ, Type PCM80PS24, 90 V~, 63 Hz			
Ambient		27	
P/S: L1 Coil		64	
P/S: L2 Coil		76	
P/S: L3 Coil		81	
P/S: T1 Coil		64	
P/S: T2 Coil		73	
P/S: Enclosure		46	
PCB near U1		48	
PCB near SOM1		64	
PCB near U21		64	
T1 Coil (inverter)		70	
L1 Coil (inverter)		73	
Enclosure, inside		42	
Enclosure, outside		35	
HDD Body		53	
Panel		35	
Model POC-S175, with P/S XPIQ, Type PCM80PS24, 264 V~, 47 Hz			
Ambient		22	
P/S: L1 Coil		61	
P/S: L2 Coil		69	
P/S: L3 Coil		77	
P/S: T1 Coil		63	
P/S: T2 Coil		75	
P/S: Enclosure		44	
PCB near U1		48	
PCB near SOM1		68	
PCB near U21		70	
T1 Coil (inverter)		70	
L1 Coil (inverter)		76	
Enclosure, inside		48	

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict
Enclosure, outside		39	
HDD Body		51	
Panel		31	
Model POC-S155, with P/S XPIQ, Type PCM80PS24, 90 V~, 63 Hz			
Ambient		26	
P/S: L1 Coil		62	
P/S: L2 Coil		69	
P/S: L3 Coil		76	
P/S: T1 Coil		64	
P/S: T2 Coil		73	
P/S: Enclosure		47	
PCB near U1		44	
PCB near SOM1		58	
PCB near U21		56	
T1 Coil (inverter)		64	
L1 Coil (inverter)		57	
Enclosure, inside		50	
Enclosure, outside		42	
HDD Body		47	
Panel		35	
Model POC-S155, with P/S Sinpro, Type MPU50-108, 90 V~, 63 Hz			
Ambient		23	
P/S: L1 Coil		72	
P/S: L2 Coil		73	
P/S: T1 Coil		70	
P/S: Enclosure		42	
PCB near U1		41	
PCB near SOM1		55	
PCB near U21		54	
T1 Coil (inverter)		61	
L1 Coil (inverter)		57	
Enclosure, inside		48	
Enclosure, outside		43	
HDD Body		37	
Panel		32	
Blocked Vents: Model POC-S155, with P/S XPIQ, Type PCM80PS24, 90 V~, 63 Hz			
Ambient		25	

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict
P/S: L1 Coil		61	
P/S: L2 Coil		68	
P/S: L3 Coil		76	
P/S: T1 Coil		63	
P/S: T2 Coil		72	
P/S: Enclosure		46	
PCB near U1		50	
PCB near SOM1		64	
PCB near U21		64	
T1 Coil (inverter)		70	
L1 Coil (inverter)		63	
Enclosure, inside		54	
Enclosure, outside		43	
HDD Body		50	
Panel		36	
Model POC-S155, with alternate main board and battery pack. Tested with power supply Sinpro, MPL150-108		90V/63Hz	Conduct temperature test at worst case input voltage from results on Input Voltage datasheet. Battery Cells fully discharged. Temps measured during charging
Cell 1		40	
Cell 2		43	
Cell 3		45	
Thermal cutoff (SCP1)		44	
Thermostat (BPF2)		45	
Q1 body		44	
Q2 Body		44	
U37 body		64	
Ambient		25	
Model POC-S155, with alternate main board and battery pack. Tested with power supply Sinpro, MPL150-108		90V/63Hz	IMPAIRMENT OF COOLING: BLOCKED VENTS Conduct temperature test at worst case input voltage from results on Input Voltage datasheet. Battery Cells fully discharged. Temps measured during charging
Cell 1		53	
Cell 2		55	
Cell 3		54	
Thermal cutoff (SCP1)		57	

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict
Thermostat (BPF2)		55	
Q1 body		55	
Q2 Body		55	
U37 body		47	
Enclosure inside above battery pack		39	
Enclosure outside above battery pack		33	
Ambient		25	
COR - indicates measurements taken using change-of-resistance method			
supplementary information:			

52	TABLE: abnormal operation		Pass
Test type, condition and clause reference		Observed results	Remarks
Model POC-S175 with Alternate Battery Back, POCS175		--	--
Short Circuit, D14 Battery Charger		Vpk=12.675V Ipk=0.06A	Unit operated normally
Short Circuit, U37 (P1-P8)		Vpk=23.523V Ipk=0.14A Elapsed Time=2 hours 24 minutes How test terminated: Unit shut down	Cell Body = 51°C Thermal cutoff = 52°C Thermostat = 51°C Ambient = 24°C
Short Circuit, D11		Vpk=12.664V Ipk=0.06A	Unit operated normally
Short Circuit Q1 (P3-P8)		Vpk =12.70V Ipk =0.08A	Unit operated normally
Short Circuit Q2 (P8-P3)		Vpk =12.69V Ipk =0.22A	Unit operated normally
56.7: REVERSED BATTERY CONNECTION		Battery Pack - fully charged	Temp of Cells: 58°C Temp of Thermal Protector: 59°C (thermal cutoff), 58°C (thermostat) Test time: 5 hours How Test Terminated: Thermal stability
56.7: REVERSED BATTERY CONNECTION		Battery Pack - fully discharged	Temp of Cells: 40°C Temp of Thermal Protector: 39°C (thermal cutoff), 40°C (thermostat) Test time: 1.5 hours How Test

Issue Date: 2005-02-04
Amendment 1 2005-11-17

Page 18 of 18

Report Reference #

E214164-A8-UL-1

IEC 60601			
Clause	Requirement + Test	Result - Remark	Verdict

		Terminated: Thermal stability
supplementary information:		

Issue Date: 2005-02-04
Amendment 1 2005-11-17

Page 1 of 5

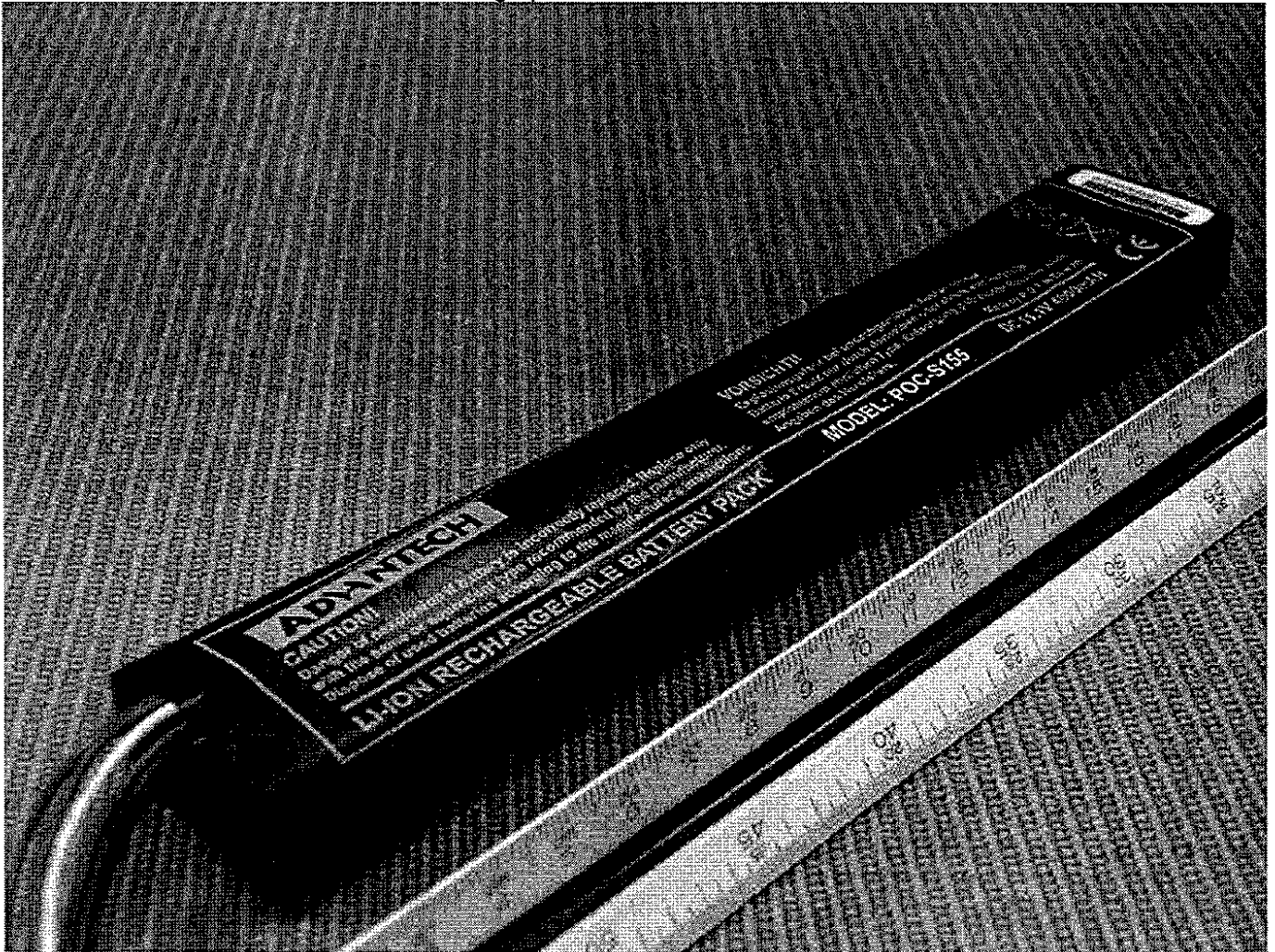
Report Reference #

E214164-A8-UL-1

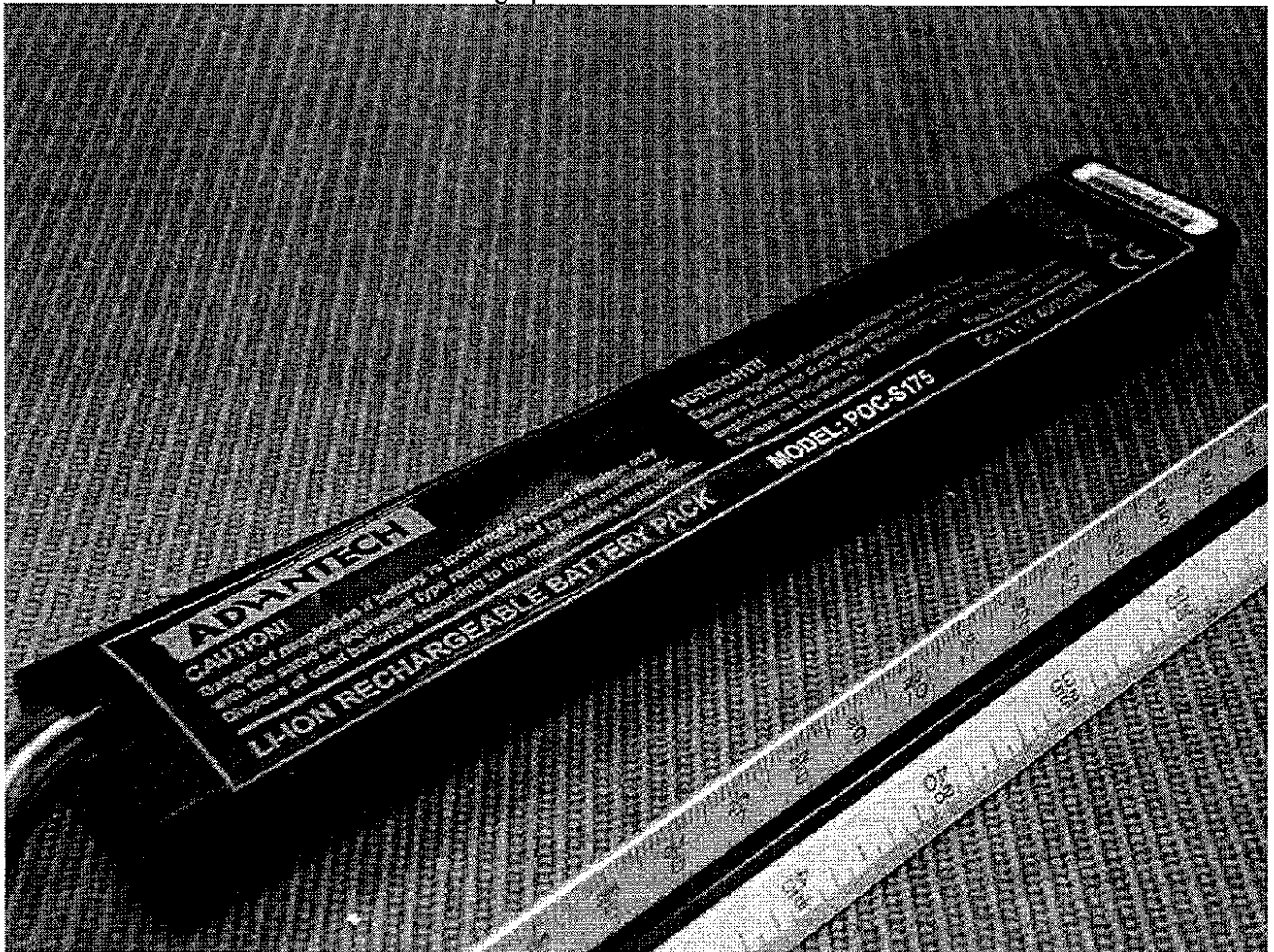
Enclosure
Photographs

Supplement Id	Description
3-01	External View
3-02	Internal View without Cover
3-03	Internal View without Cover or Chassis
3-04	Battery Pack POC-S155
3-05	Battery Pack POC-S175
3-06	Battery Pack Circuit Board
3-07	POC-S175 with battery pack

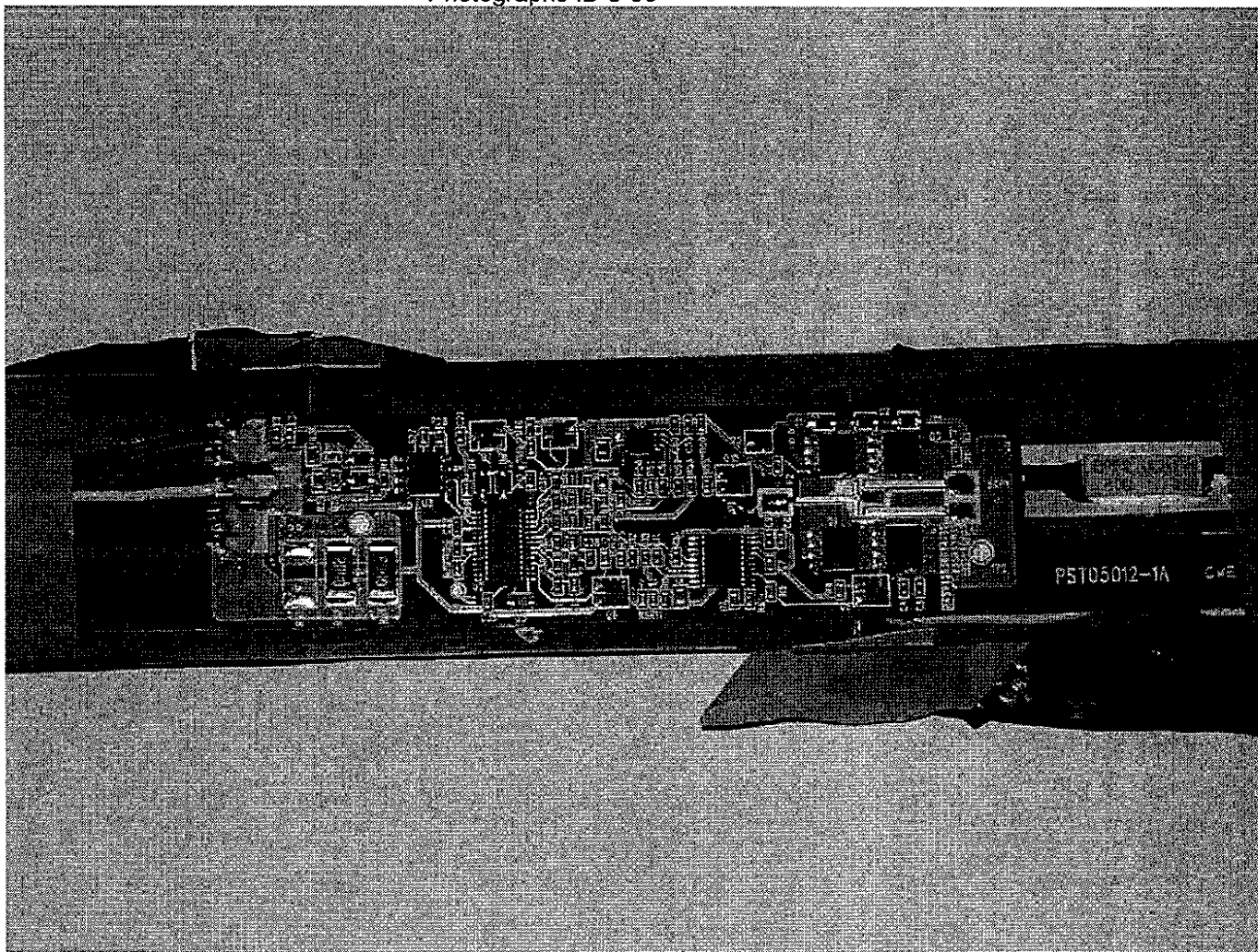
Photographs ID 3-04



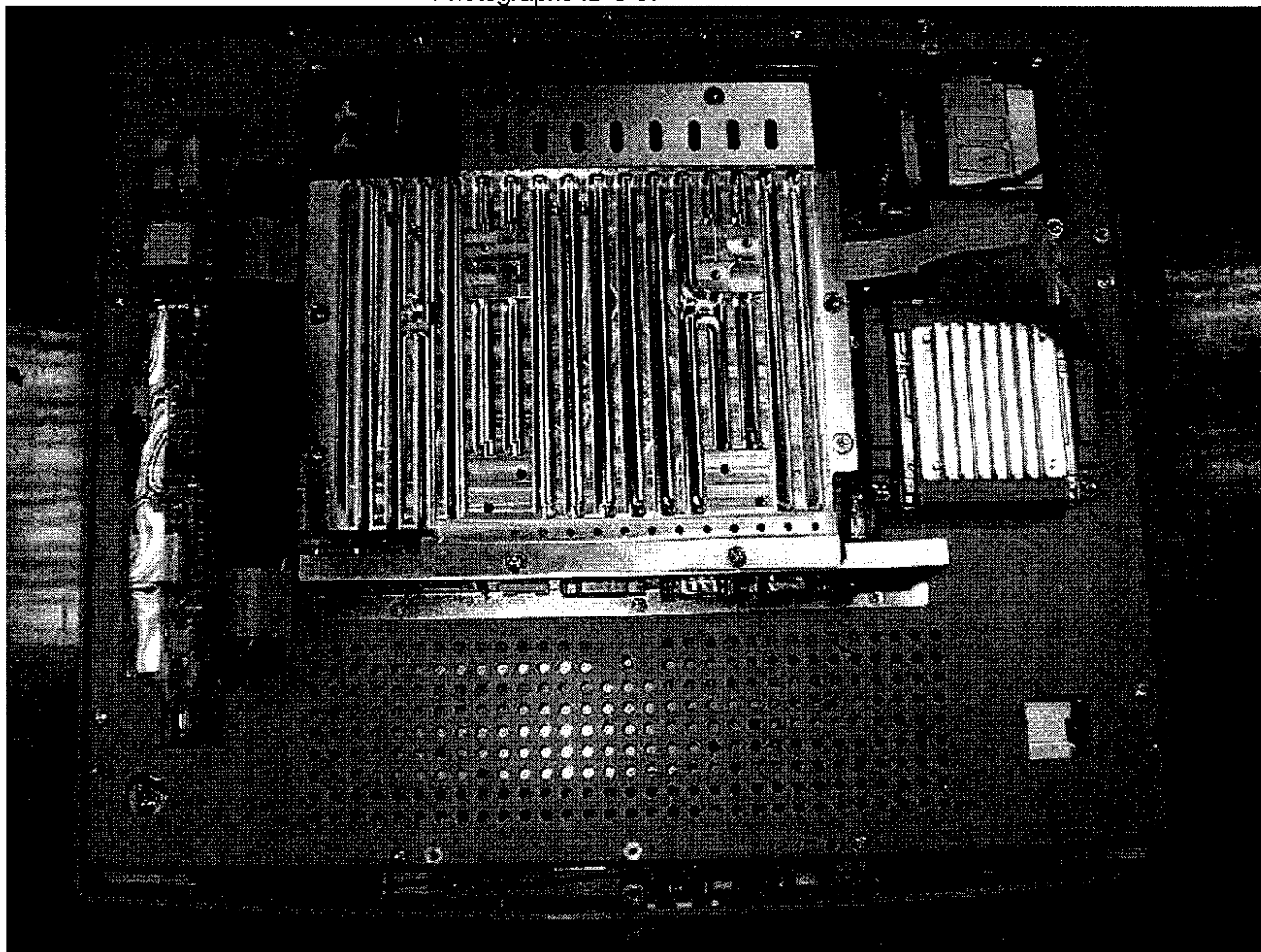
Photographs ID 3-05



Photographs ID 3-06



Photographs ID 3-07



Issue Date: 2005-02-04
Amendment 1 2005-11-17

Page 1 of 8

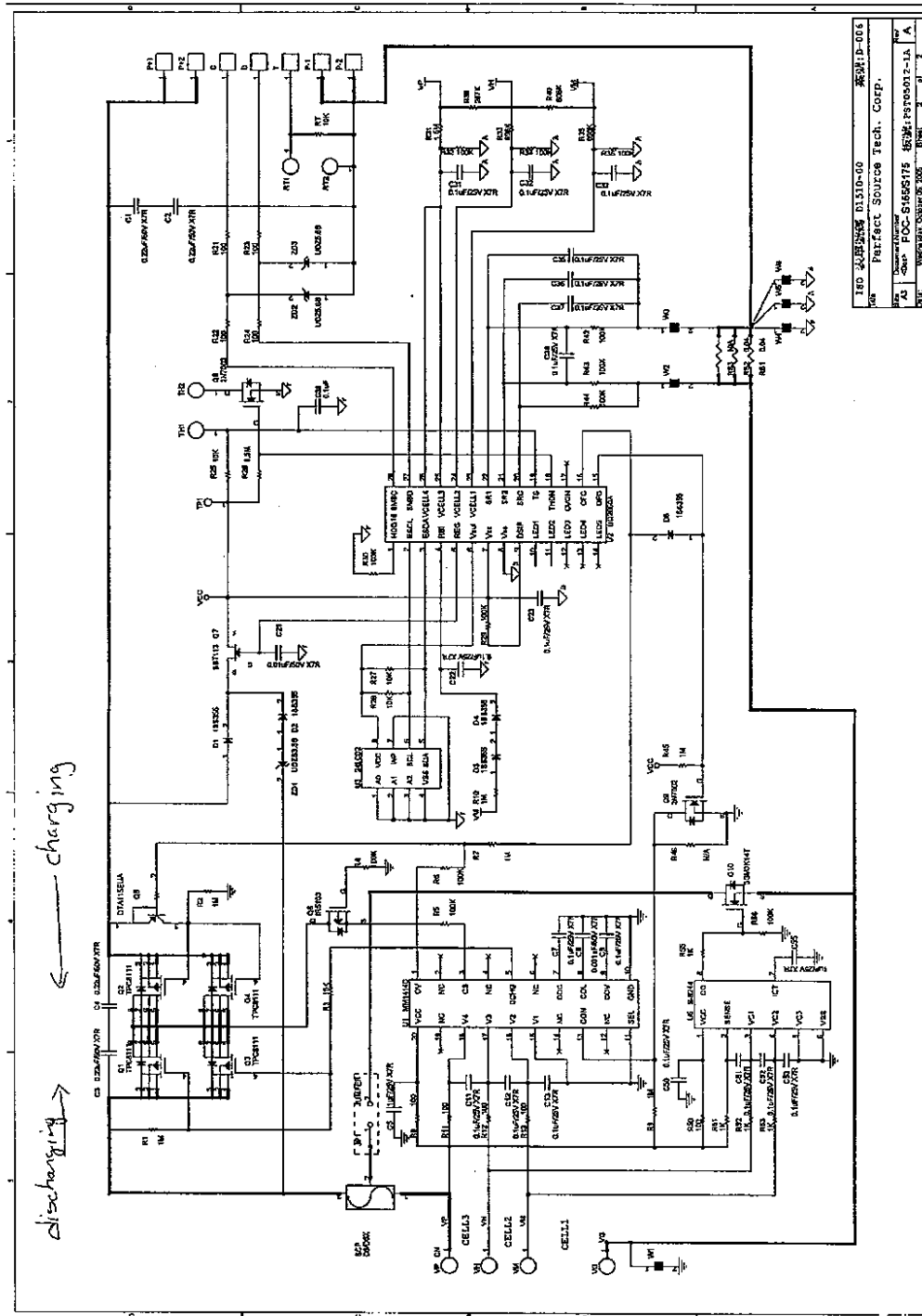
Report Reference #

E214164-A8-UL-1

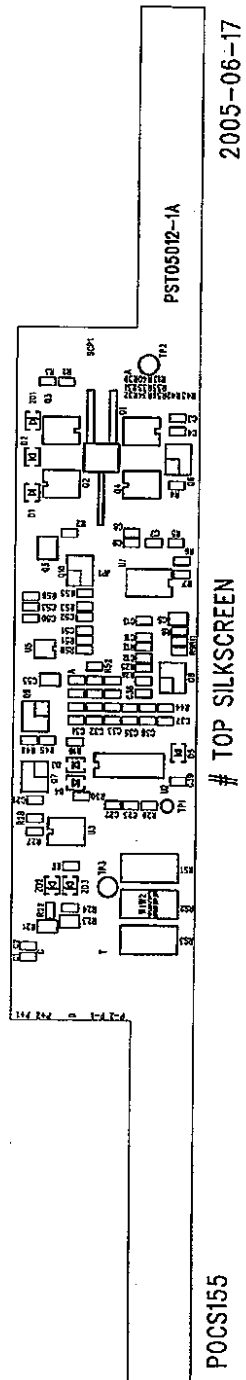
Enclosure
Schematics + PWB

Supplement Id	Description
5-01	Battery Charger Schematic
5-02	Battery Charger Layout
5-03	Battery Charger Selector Circuit Schematic

Schematics ID 5-01

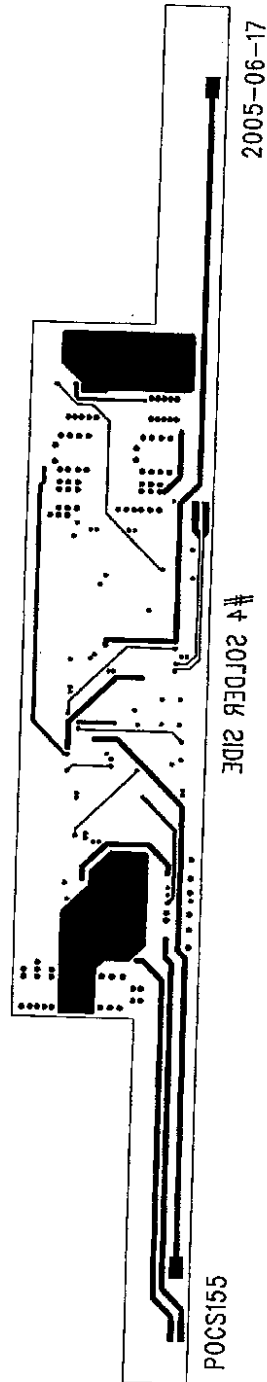


Schematics ID 5-02



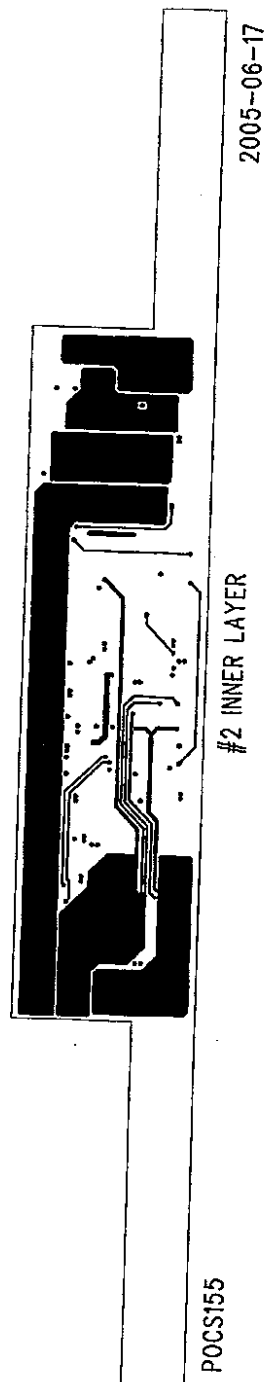
V351.pcb - Wed Aug 10 15:50:55 2005

Schematics ID 5-02



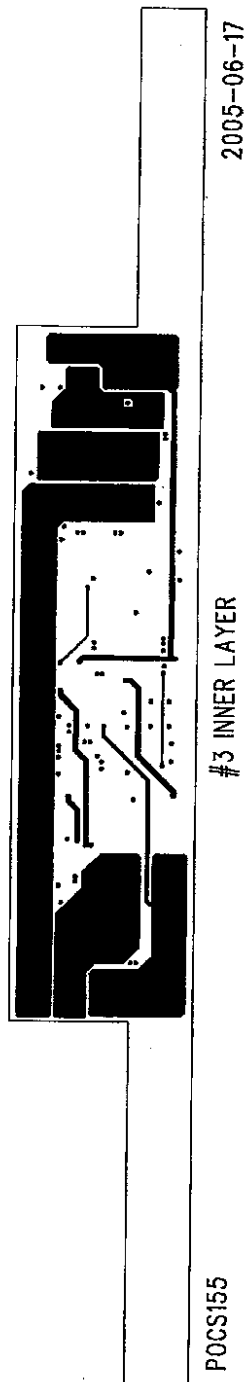
155-V351.pcb -- Wed Aug 10 15:58:13 2005

Schematics ID 5-02



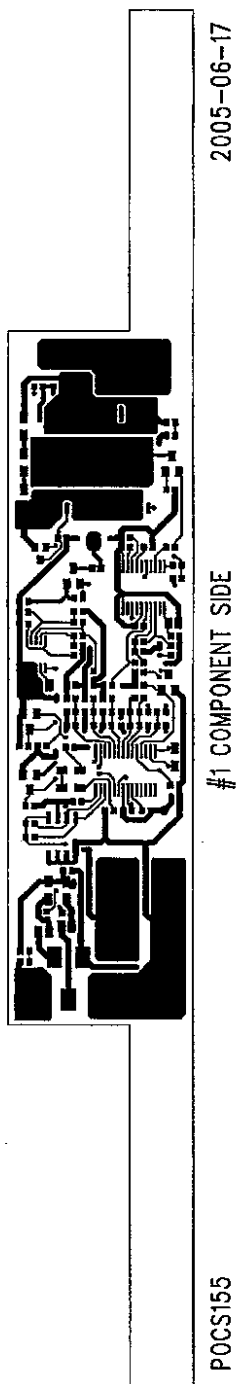
25-V351.pcb - Wed Aug 10 15:55:06 2005

Schematics ID 5-02



155-V351.pcb - Wed Aug 10 15:56:07 2005

Schematics ID 5-02



POC5155-V351.pcb -- Wed Aug 10 15:57:15 2005

Issue Date: 2005-02-04
Amendment 1 2005-11-17

Page 1 of 2

Report Reference #

E214164-A8-UL-1

Enclosure
Test Record

Description
Test Record 1
Data sheets
Portion of SPC Data
Test Record 2
Datasheets for alternate main board and battery pack, POCS155 and POCS175
Construction Review Datasheet

Test Record No. 2

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.

Due to similarity to Model POC-S175 and POCS-155 already tested for this manufacturer, only the tests listed above were considered necessary to add the optional battery pack and alternate main board.

Testing on Model POC-S175 was conducted with battery pack POCS175. Testing on Model POC-S155 was conducted with battery pack POCS155. The battery packs are identical except for their model numbers.

The preceding 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

Schematics ID 5-03

