Test Report issued under the responsibility of:

TEST REPORT
IEC 60950-1
Information technology equipment - Safety - Part 1: General requirements

Report Reference No ..... :	E238623-A133-CB-1
Date of issue ..... :	2013-02-05
Total number of pages ..... :	12
CB Testing Laboratory ..... :	Underwriters Laboratories Taiwan Co., Ltd.
Address ..... :	260 Da-Yeh Road, 112 Peitou Taipei City, Chinese Taipei
Applicant's name ..... :	INVENTEC CORP
Address ..... :	349 JEN-HO RD SEC 2, TACHI, TAOYUAN HSIEN 335, TAIWAN
Test specification:	
Standard ..... :	IEC 60950-1:2005 (2nd Edition); Am 1:2009
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC60950_1C
Test Report Form originator ..... :	SGS Fimko Ltd
Master TRF ..... :	2012-08

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description	:	Accessory, PCI Express RAID Adapter
Trade Mark	:	LSI
Manufacturer	:	INVENTEC CORP 349 JEN-HO RD SEC 2, TACHI, TAOYUAN HSIEN 335, TAIWAN
Model/Type reference	:	25420
Ratings	:	N/A

Testing procedure and testing location:			
[ ]	**CB Testing Laboratory**		
	Testing location / address..... :		
[ ]	**Associated CB Test Laboratory**		
	Testing location / address..... :		
	Tested by (name + signature) ..... :		
	Approved by (name + signature) ... :		
[ ]	**Testing Procedure: TMP**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Testing location / address..... :		
[x]	**Testing Procedure: WMT**		
	Tested by (name + signature) ..... :	Judy Tsou	Judy Tsou
	Witnessed by (+ signature)..... :	Teru Chen	Teru Chen
	Approved by (+ signature) ..... :	Stephen Huang	Stephen Huang
	Testing location / address..... :	Inventec Corp., 349, Jen-Ho Road Sec.2, 335 Tachi, Taoyuan, Taiwan	
[ ]	**Testing Procedure: SMT**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Supervised by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: RMT**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Supervised by (+ signature) ..... :		
	Testing location / address..... :		

List of Attachments

National Differences (0 pages)

Enclosures (14 pages)

Summary Of Testing

Unless otherwise indicated, all tests were conducted at Inventec Corp., 349, Jen-Ho Road Sec.2, 335 Tachi, Taoyuan, Taiwan.

	Tests performed (name of test and test clause)	**Testing location / Comments**
	End Product Reference Page	

General Guidelines

Component Failure (5.3.1, 5.3.4, 5.3.7)

Summary of Compliance with National Differences:

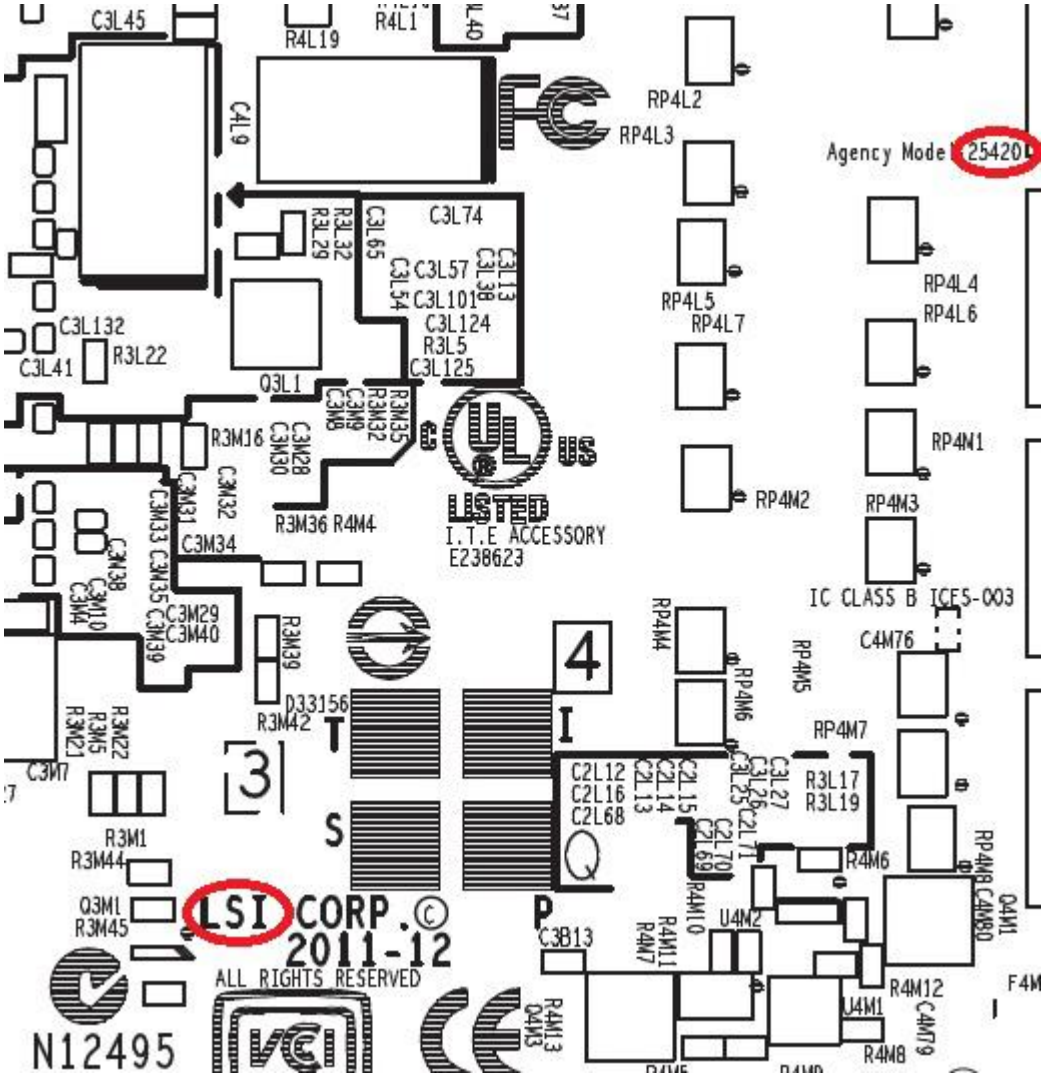
Countries outside the CB Scheme membership may also accept this report.

List of countries addressed: AT, BE, BG, BY, CA, CH, CN, CZ, DE, DK, ES, EU, FI, FR, GB, GR, HU, IL, IT, JP, KR, NL, NO, PL, RO, SE, SG, SI, SK, UA, US

The product fulfills the requirements of: EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011

Copy of Marking Plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Test item particulars :	
Equipment mobility ..... :	for building-in
Connection to the mains ..... :	N/A
Operating condition ..... :	continuous
Access location ..... :	N/A
Over voltage category (OVC) ..... :	N/A
Mains supply tolerance (%) or absolute mains supply values ..... :	No direct connection
Tested for IT power systems ..... :	No
IT testing, phase-phase voltage (V) ..... :	N/A
Class of equipment ..... :	Class III (supplied by SELV)
Considered current rating of protective device as part of the building installation (A) ..... :	N/A
Pollution degree (PD) ..... :	PD 2
IP protection class ..... :	IP X0
Altitude of operation (m) ..... :	Up to 2000m
Altitude of test laboratory (m) ..... :	Up to 2000m
Mass of equipment (kg) ..... :	0.18 kg max.
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)
Testing:	
Date(s) of receipt of test item ..... :	2013-06-20
Date(s) of Performance of tests ..... :	2013-06-20

General remarks:

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

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

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

Manufacturer's Declaration per Sub Clause 6.2.5 of IECEE 02: Yes

The application for obtaining a CB Test Certificate includes more than one factory and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....

When differences exist, they shall be identified in the General Product Information section.

Name and address of Factory(ies):	(1) INVENTEC (PUDONG) TECHNOLOGY CORPORATION CAOHEJING EXPORT PROCESSING ZONE, 789 PUXING RD, SHANGHAI 201114, CHINA

(2) INVENTEC CORP
255 JEN-HO RD, SEC 2, NAN-HSIN LI, TAICHI TAOYUAN 335, TAIWAN

GENERAL PRODUCT INFORMATION:

Report Summary

The original report was modified on 2013-07-04 to include the following changes/additions:
-This test report shall be read in conjunction with the original report no.:
1. E238623-A133-CB-1, issued 2013-02-05 , with CB Certificate, DK-30892-UL , issued 2013-02-06.

-This test report has been amended due to
1. Alternate heatsink.
2. Alternate bracket.(openings)
3. Remove plastic cover on daughter board.
4. Add glue on daughter board.

- Only limited tested were deemed necessary

- Unless otherwise indicated, all tests were conducted at INVENTEC CORP, 349 JEN-HO RD SEC 2,TACHI, TAOYUAN HSIEN,TAIWAN,335 under WMT program.

Product Description

Electronic components were mounted on PWB and supplied by SELV via the end-use Server's main board.

Model Differences

N/A

Additional Information

SuperCap module (Tecate Industries Inc., type:17-0005-4483) rating: 2F, 13.5V.
According to clause 2.1.1.5,
$E = 0.5 * CU^2 * 10^{(-6)}$
$E = 182.25 J > 20 J$

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 55°C
- The product was investigated to the following additional standards: EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 (which includes all European national differences, including those specified in this test report).
- The following are available from the Applicant upon request: Installation (Safety) Instructions / Manual
- Ultracapacitor Module w/ future effective requirements: The product contains an ultracapacitor module that complies with the Standard for Electrochemical Capacitors, UL810A.

- Fire enclosure, electrical enclosure and mechanical enclosure shall be provided in the final system. --
- Heating test need be evaluated in the final system. --

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

Indicate used abbreviations (if any)

IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.3.7	Simulation of faults	Component fault: U6, U9, U15: DC Output shutdown after 5 sec. No hazard.	Pass

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

1.5.1	**TABLE: list of critical components**				Pass
object/part or Description	manufacturer/ trademark	type/model	technical data	standard (Edition or year)	mark(s) of conformity[1])
01. PWB	interchangeable	interchangeable	Rated V-1 minimum, 105 degree C minimum	UL796	UL, --
02. Heat Sink (On U5B4)	--	--	Aluminum. (Please see Enclosure 4-06 for details)	--	--, --
02a. Heat Sink (On U5B4) (Alternate)	--	--	Aluminum. (Please see Enclosure 4-07 for details)	--	--, --
03. Internal Plastic Part/Materials	interchangeable	interchangeable	Rated V-2 minimum	UL94, UL746C	UL, --
04. Connectors and Receptacles (secondary ELV/SELV circuits)	interchangeable	interchangeable	Metal/plastics, Copper alloy pins housed in bodies of plastic rated V-2 min.	UL1863, UL498, UL1977, UL94, UL746C	UL, --
05. Wiring (Secondary ELV/SELV) (Optional)	interchangeable	interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; 60 V min., 60 degree C min.	UL758	UL, --
06. Battery Pack (Optional)	Palladium Energy Co Ltd /LSI	BAT1S1P-A	3.7Vdc, 1.59Ah, 5.9Wh or 3.7Vdc,1.5Ah, 5.6W	UL60950-1 UL2054	UL, --
07. SuperCap Module (Optional)	Tecate Industries Inc	17-0007-4483	13.5Vdc, 2F	UL810A	UL, --
08. Label (Marking on PWB)	--	--	Printed by ink	--	--, --
09. Insulating Tubing/Sleeving (Optional)	interchangeable	interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or marked VW-1; 105 degree C, 300 V.	UL 224	UL, --
10. Cover of	interchangeable	interchangeable	V-2 min.,	UL94	UL, --

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

daughter board (for SuperCap Module) (Optional)			dimension see Enclosure 4-03 detail.		
11. Glue/Epoxy on daughter board (for Super Cap module) (for daughter board without cover)	interchangeable	interchangeable	V-2 min. covered on conductive parts of U6-pin1, pin2; U15-pin11; C25-pin1; C1-pin1; J1-pin1, pin2; Q3-pin4;Q1-pin5,pin6 (See Enclosure 3-26 for details)	UL94	UL, --
Supplementary information: [1]) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

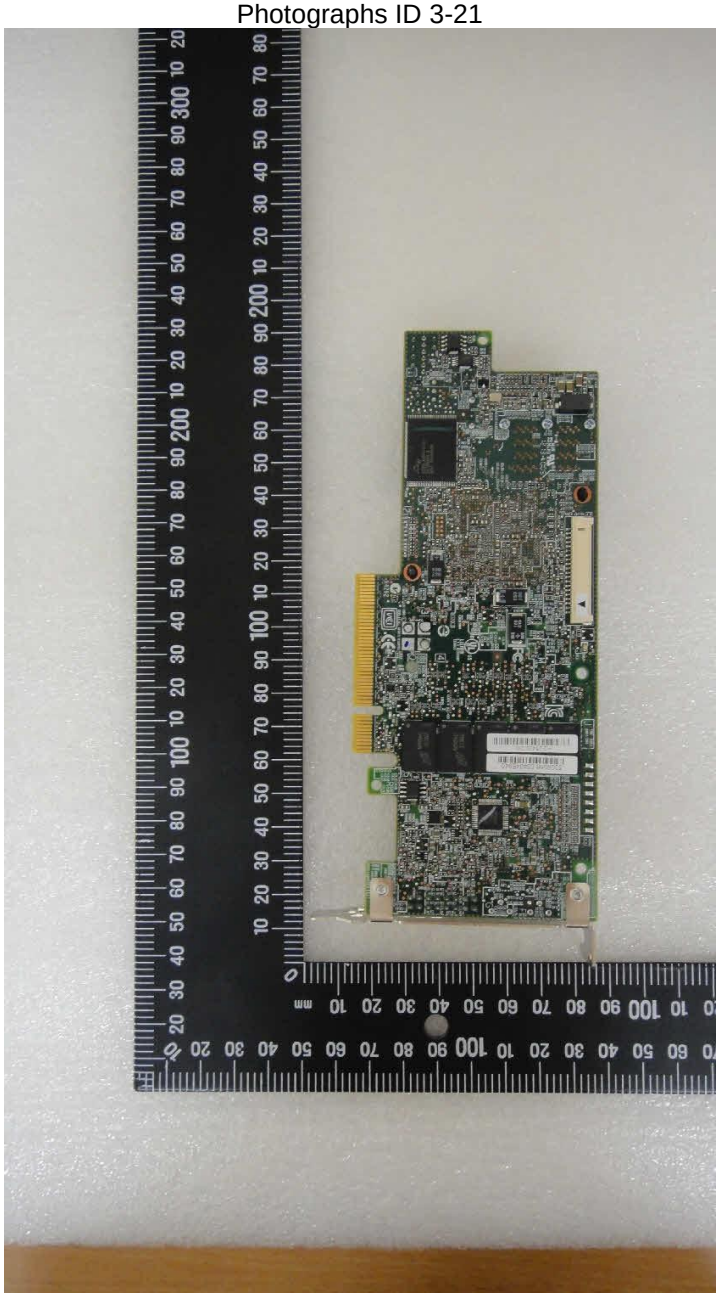
IEC 60950-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.3	**TABLE: fault condition tests**						N/A
	ambient temperature (° C) ..... :				See below		—
	Power source for EUT: Manufacturer, model/type, output rating ..... :				See test sample Identification for detail		—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation	
For Project 13CA34882	--	--	--	--	--	--	
U6	Short, Pin 3,4 – 5,6	240V/50Hz	5 min.	--	--	DC Output shutdown after 5 sec. NC、NT, No Damage	
U9	Short, Pin 7 – 8	240V/50Hz	5 min.	--	--	DC Output shutdown after 5 sec. NC、NT, No Damage	
U15	Short, Pin 10 – 11	240V/50Hz	5 min.	--	--	DC Output shutdown after 5 sec. NC、NT, No Damage	
supplementary information:							

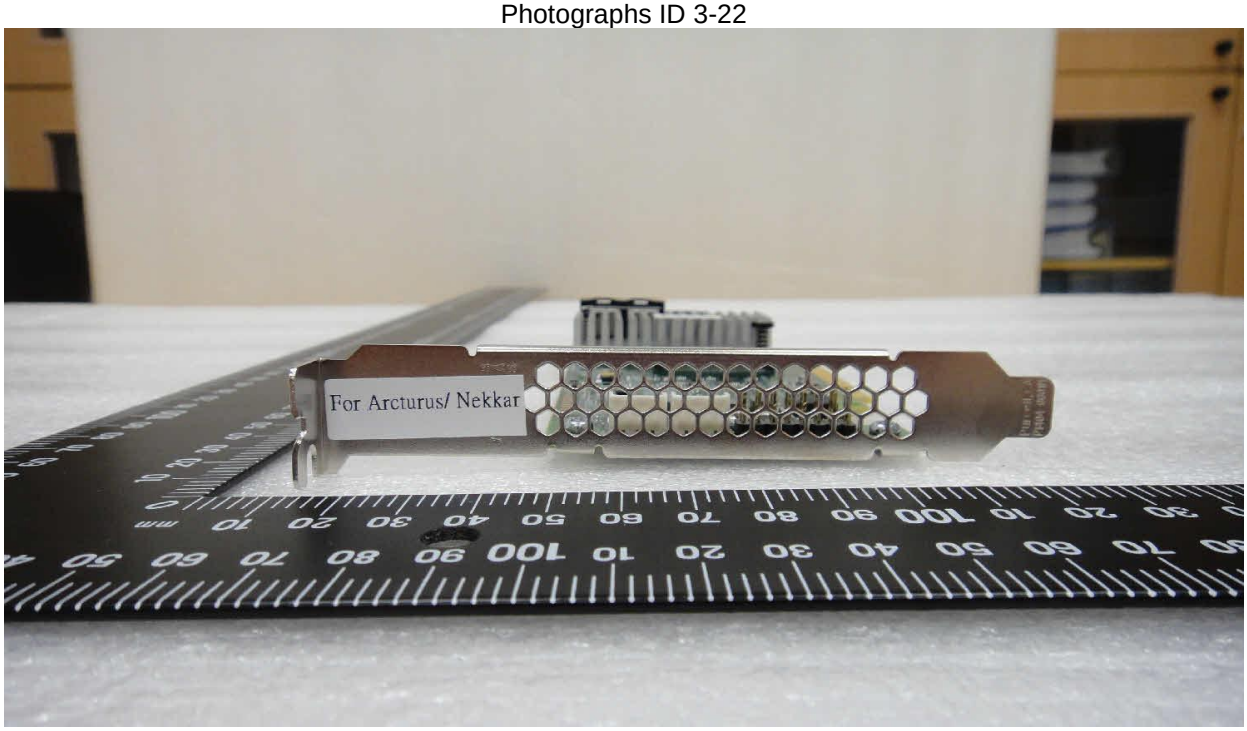
Enclosures

Type	Supplement Id	Description
Photographs	3-01	Overall View - 1
Photographs	3-02	Overall View - 2
Photographs	3-03	Overall View - 3
Photographs	3-15	Overall View - 3 (alternate)
Photographs	3-16	Overall View with Battery Pack
Photographs	3-17	Overall View with SuperCap Module
Photographs	3-18	Overall View with SuperCap Module (alternate)
Photographs	3-19	Top View of daughter board for SuperCap Module
Photographs	3-20	Bottom View of daughter board for SuperCap Module
Photographs	3-21	Overall view – 4 (Alternate)
Photographs	3-22	Overall view – FH openings (Alternate)
Photographs	3-23	Overall view – LP openings (Alternate)
Photographs	3-24	Overall View with SuperCap Module (no plastic cover on daughter board)
Photographs	3-25	Top View of daughter board for SuperCap Module (Alternate, without plastic cover)
Photographs	3-26	Glue location (For daughter board without plastic cover)
Diagrams	4-02	Dimension of openings
Diagrams	4-03	Cover of daughter board (for SuperCap Module)
Diagrams	4-04	Dimension of FH openings (Alternate)
Diagrams	4-05	Dimension of LP openings (Alternate)
Diagrams	4-06	Heatsink
Diagrams	4-07	Heatsink (Alternate)
Schematics + PWB		
Manuals		
Miscellaneous	7-08	Manufacturer Declaration for Multiple Factories
Miscellaneous	7-09	List of test equipment
Miscellaneous	7-10	List of test equipment
Licenses		
Marking Plate		

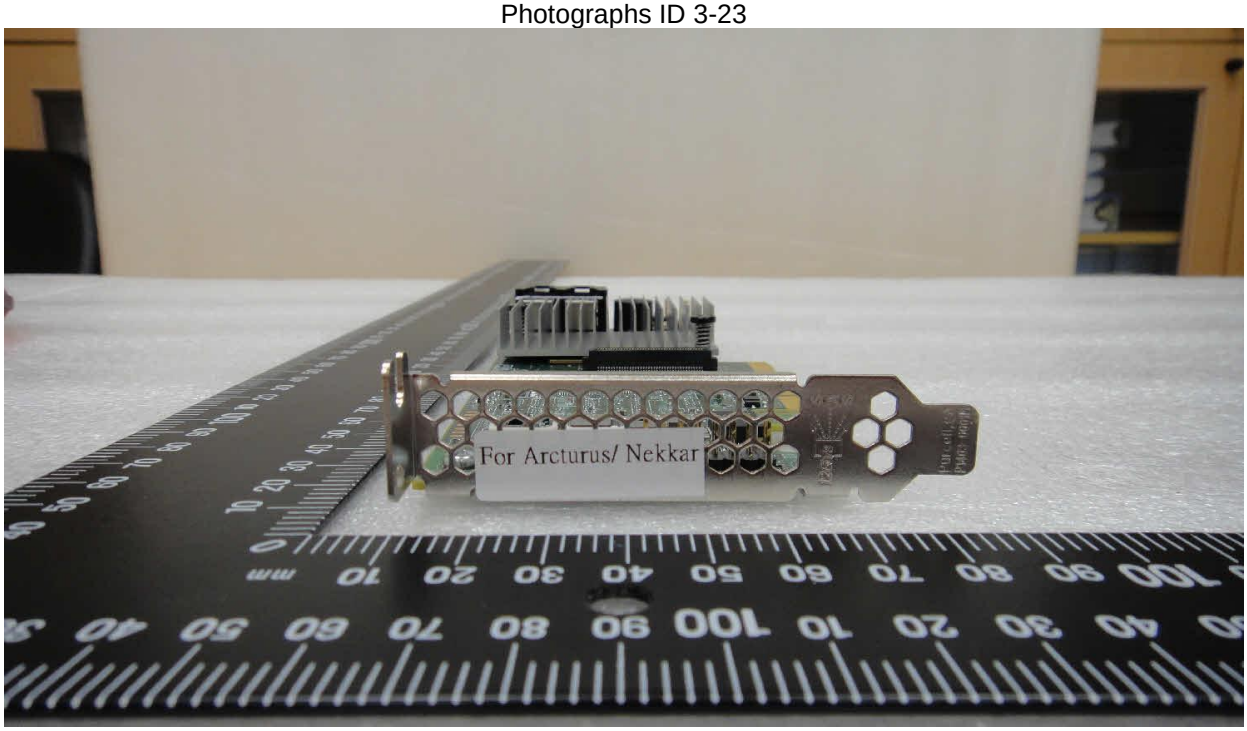
Photographs ID 3-21



Photographs ID 3-22



Photographs ID 3-23



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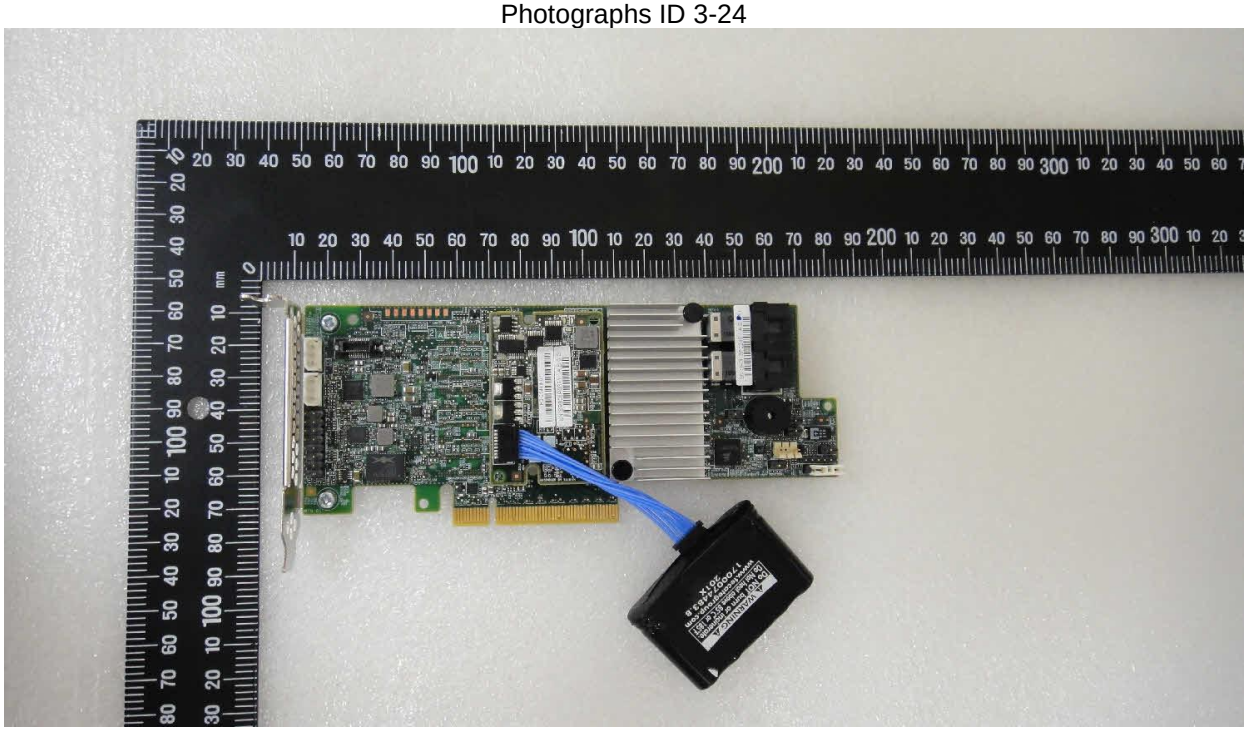
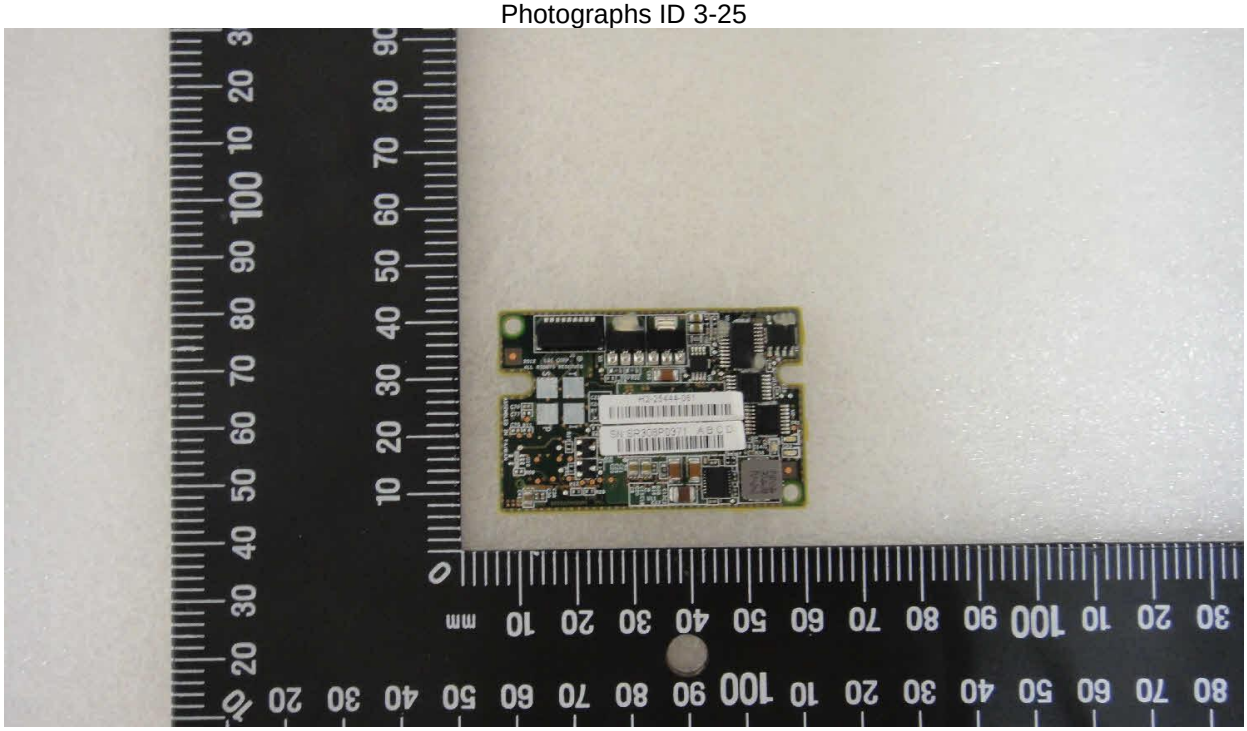


Photographs ID 3-25



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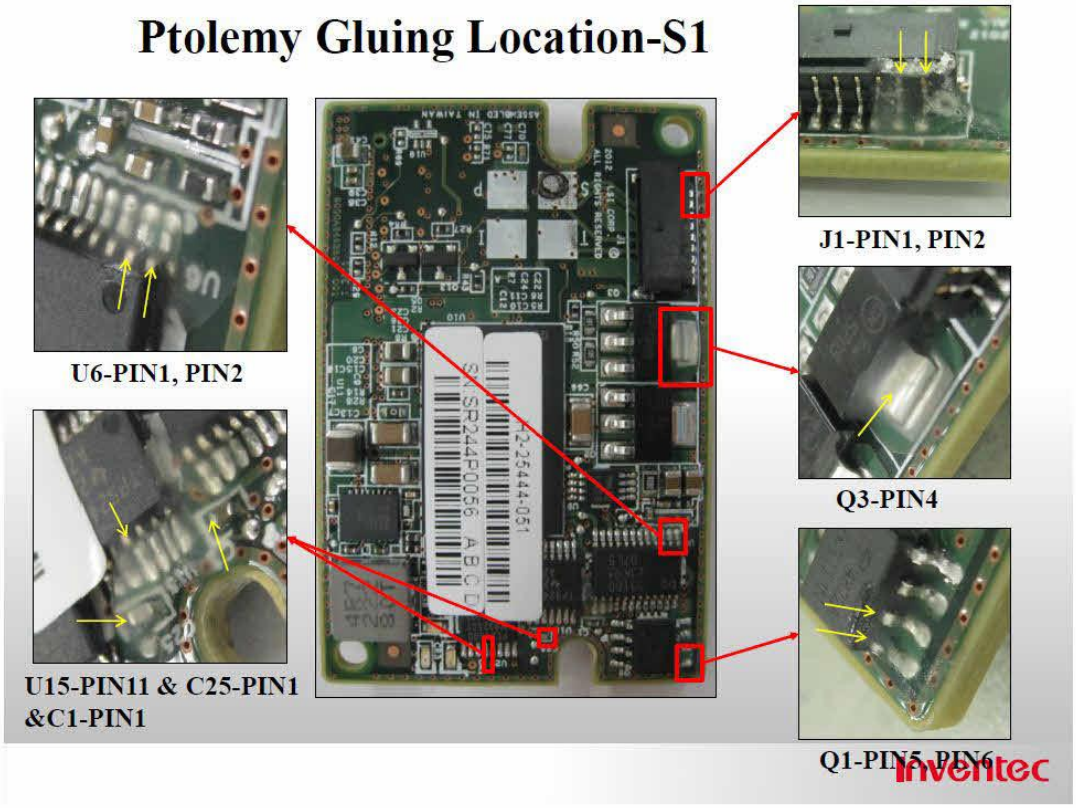

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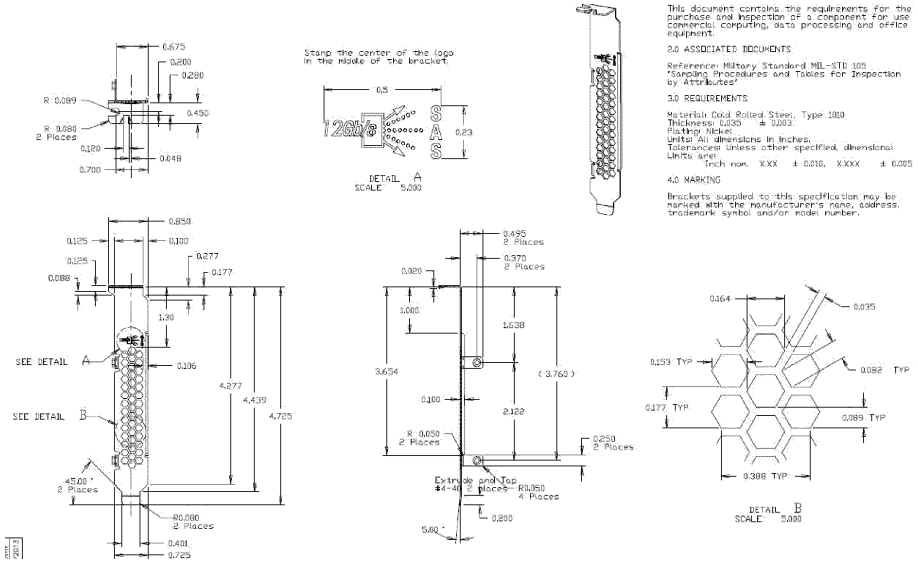
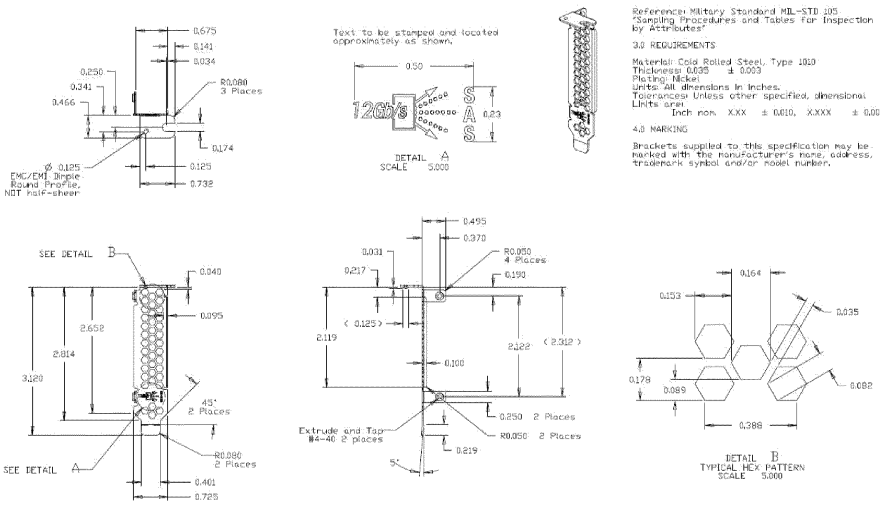


Diagrams ID 4-05



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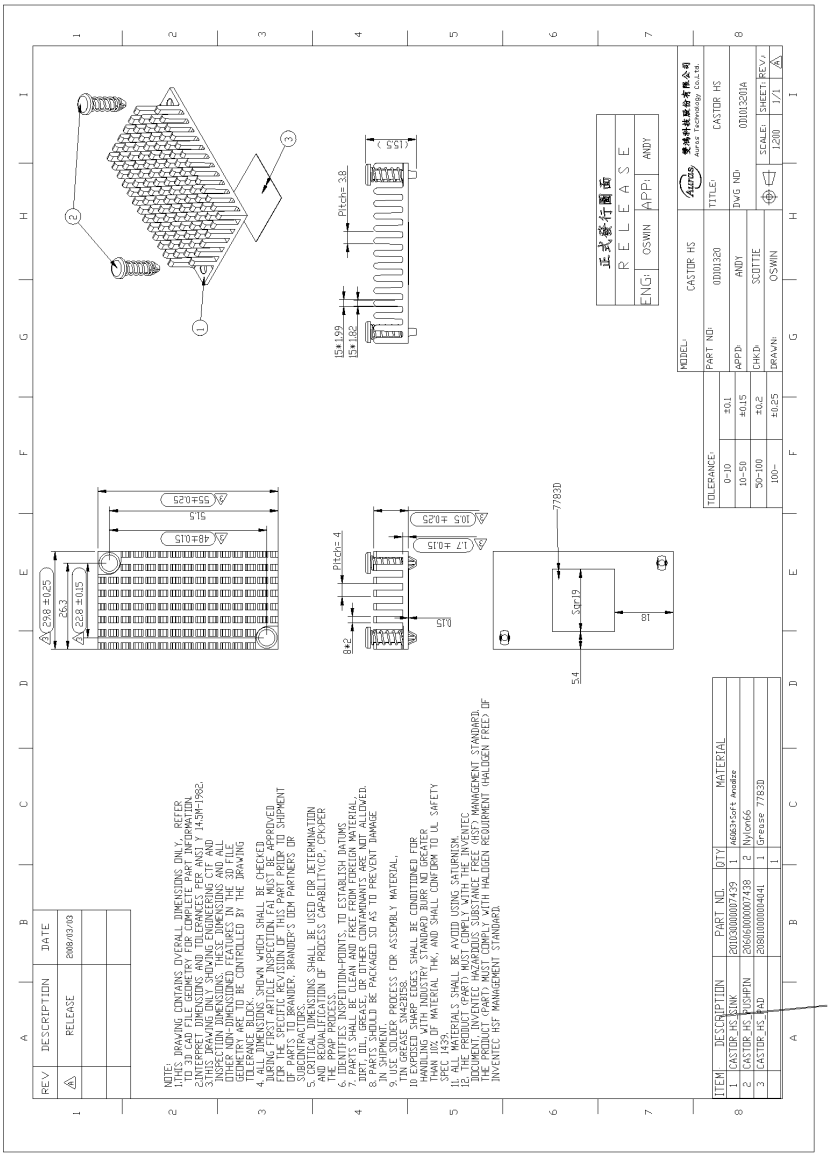
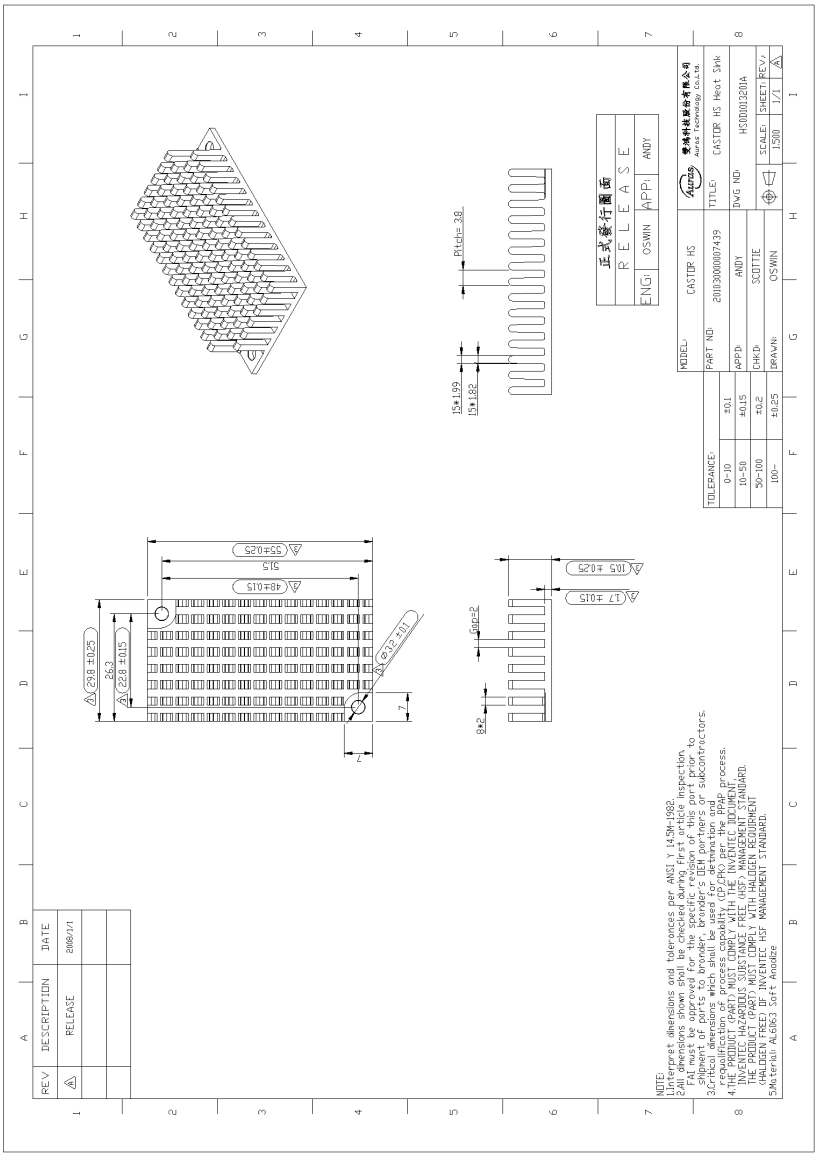
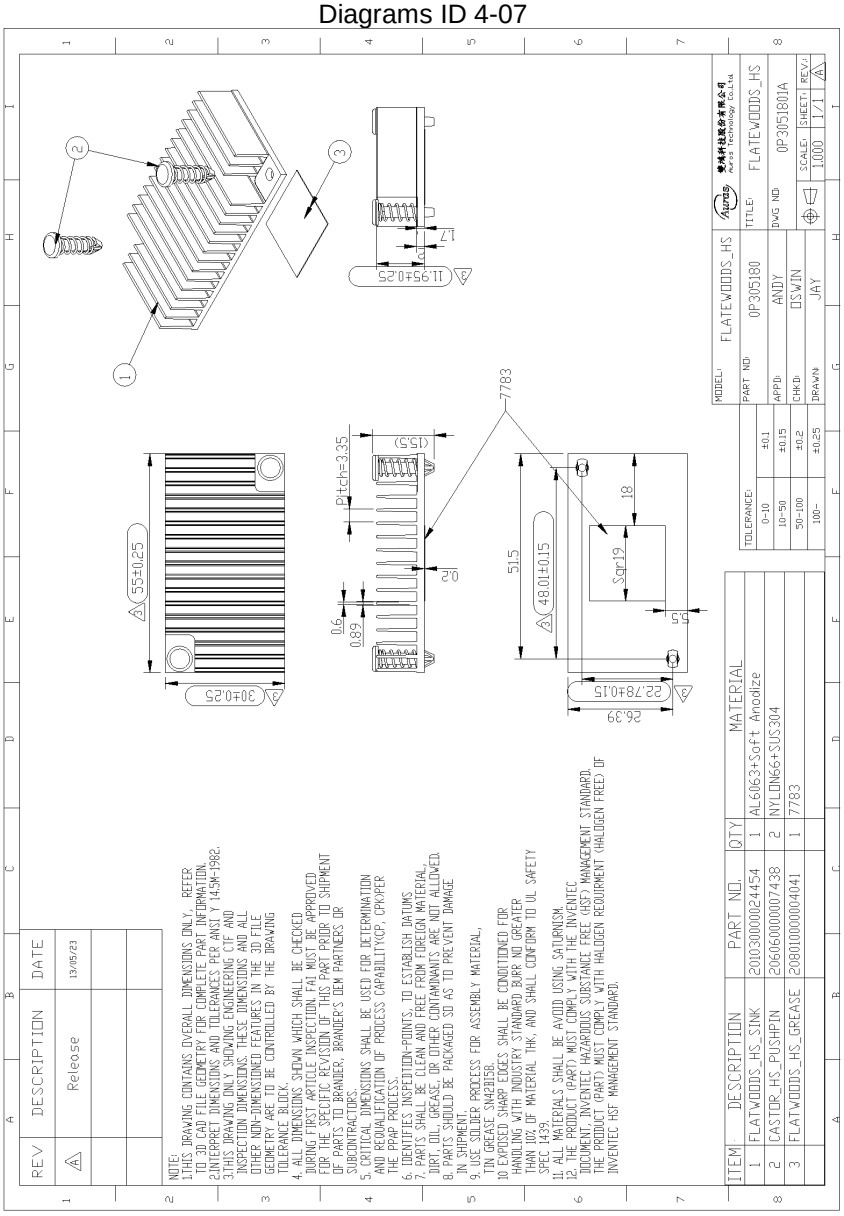


Diagrams ID 4-06



Diagrams ID 4-07



Misc ID 7-10

File No. E238623
Model No. 25420
Project No. 13CA34882

Tested by Judy Tsou
Witnessed by
Date: 2013/6/20

第 1 頁

PREPARED BY: Judy Tsou
REVISED DATE: 2013-06-19

PRODUCT SAFETY LAB EQUIPMENT LIST

ITEM	DESCRIPTION	MANUFACTURER /MODEL/SN	SPECIFICATION: POWER RATING	CALIBRATION STATUS		
				LAST CAL.DATE	DUE DATE	CONTROL NO.
1	WT210 POWER METER	YOKOGAWA /MODEL760401 / 91K209547	300V,10A,50/60HZ	2013-01-22	2014-01-22	153100004894
2	DC POWER SUPPLY	CHROMA 62024P-80-60/ 62024PA00533	0-60A,0-70V	2013-05-21	2014-05-21	153100005596
3	DATA ACQUISITION/ UNIT	YOKOGAWA MX100	0~400℃	2013-05-21	2014-05-21	153100004891
4	FORCE GAUGE	CHATILLON /DPP-25KG	25KG	2013-01-25	2014-01-25	30A02000273
5	DC ELECTRONIC LOAD	CHROMA 63600-2 & 63640-80-80*2	0~80V, 0~80A, 400W	2013-01-12	2014-01-12	153100006092
6	Ruler	MAGIC/3M/10FT	3M/10FT	2012-07-24	2013-07-08	ME-222-008
7	FREQUENCY CONVERTER	EXTECH/6530 /1400231	30KVA,0-300VAC,50/60Hz	2013-04-12	2014-04-11	153100004892
8	MULTIMETER	FLUKE87 DMM	10A,1-100mA,1000VAC 1mA-10ADC,10MΩ	2013-04-22	2014-04-22	303110015068
9	DATA ACQUISITION/ UNIT	YOKOGAWA MX100	0~400℃	2013-06-19	2014-06-19	153100000622
10	WT210 POWER METER	YOKOGAWA/MODEL760401 /27c824005 H	300V, 10A , 50/60HZ	2012-10-16	2013-07-26	153100000621
11	FREQUENCY CONVERTER	EXTECH/6530 /1400367	30KVA,0-300VAC,50/60Hz	2012-11-15	2013-11-15	153100006066
12	DC POWER SUPPLY	CHROMA 62012P-80-60/ 62012PD01014	0 –60A, 0-70V	2013-05-21	2014-05-21	151100139971
13	LEAKAGE CURRENT TESTER	Simpson/ MODEL 228/ 20100018	100,200 and 300VAC, 10mA, 50 or 60Hz	2013-01-21	2014-01-21	151100106337
14	WT110 POWER METER	YOKOGAWA/MODEL253401 /2534HA127 B	300V,10A ,50/60HZ	2013-01-22	2014-01-22	303060000113
15	FREQUENCY CONVERTER	EXTECH/6530 /1400368	30KVA,0-300VAC,50/60Hz	2012-11-15	2013-11-15	153100006065
16	ELECTRICAL SAFETY COMPLIANCE ANALYZER	EXTECH/MOODEL 7742 /E 1350810	5Kvac @ 40mA, 40A 1000Vac, 1000Vdc	2013-06-18	2014-06-18	153100005653
17	TIMER	CASIO/HS-5	STOPWATCH 0.01 second~4 hr	2012-09-07	2013-07-09	EW-236-008
18	CALIPER 200MM	MITUTOYO/Calipers	Digital 500-211 0.01~200 mm 20CM	2012-07-24	2013-07-09	30A010001261
19	SCALE	JS/JHL-150Y	0~50kg	2013-01-22	2014-01-22	151100115022
20	DC ELECTRONIC LOAD	KIKUSUI/PLZ 150W/281127800	4~60V, 0~15A, 150W	2013-04-22	2014-04-22	304110000464

Misc ID 7-10

File No. E238623
Model No. 25420
Project No. 13CA34882

Tested by Judy Tsou
Witnessed by
Date: 2013/6/20

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ITEM	DESCRIPTION	MANUFACTURER / MODEL/SN	SPECIFICATION: POWER RATING	CALIBRATION STATUS		
				LAST CAL DATE	DUE DATE	CONTROL NO.
21	STEEL BALL	–	Diameter: 50.79 mm Weight: 535 gm	N/A	N/A	N/A
22	LEVEL AND ANGLE	PRO	–	N/A	N/A	N/A
23	TRANSFORMER	FOSAN	240/240V, 1K VA	N/A	N/A	N/A
24	CHEESECLOTH	--	40 g/m2	N/A	N/A	N/A
25	WRAPPING TISSUE	--	12 g/m2~30 g/m2	N/A	N/A	N/A
26	TEMPERATURE & HUMIDITY	S3120	20~30 ℃,40~60 %	2012-07-08	2013-07-07	304110000464
27	--	--	--	--	--	--
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