

LITE-ON ELECTRONICS, INC. _PA-1900-05D_ PROJECT MVT TECHNOLOGY TRANSFER LIST (YELLOW BOOK)

CUSTOMER: DELL

NPPR NO.: N-010902

REV.: 01

SAFETY: *Johny Seaford*

ITEM	DESCRIPTION		REV	Q'TY	RECEIVE DATE		REMARK	ITEM	DESCRIPTION		REV	Q'TY	RECEIVE DATE		REMARK
					FCST	ACT							FCST	ACT	
1	OPEN ISSUE			1 PCS	/		OPTION	15	β -TEST REPORT		D-020027	1 PCS	/	01/08/02	
2	DESIGN CHANGE LIST		REV.:	1 PCS	/			16	QUALITY INSPECTION CRITERIA		QN-2002008	1 PCS	/	02/20/02	
3	SCHEMATIC	EPS310710 B		1 PCS	/	02/09/02		17	MTR		REV.: C	1 PCS	/	02/09/02	
4	PART LIST		REV.: 01	1 PCS	/	02/26/02		18	ASSEMBLY DRAWING	3AAA00459 A		1 PCS	/	02/09/02	
5	CRITICAL COMPONENTS LIST/VENDOR LIST		REV.: G	2 PCS	/	02/09/02		19	SPECIAL ASSEMBLING INSTRUCTION		REV.: A	1 PCS	/	02/09/02	
6	ENGINEERING SPEC.		REV.: C	1 PCS	/	02/09/02		20	Cpk DATA FROM DVT TESTING	DVT-0201020		1 PCS	/	01/27/02	
7	PCB ARTWORK	A1900-0X	REV.: B	3 PCS	/	02/09/02		21	FMEA REPORT			1 PCS	/		
			REV.:					22	SOLDERABILITY QUALITY REPORT			1 PCS	/		
			REV.:					23	PROCESS MANAGEMENT PLAN		03	1 PCS	/	01/06/02	
			REV.:					24	SAFETY LICENSE	UL / NRTL			/		
8	OUTLINE DRAWING	3OAA00047 A		1 PCS	/	02/09/02				CSA / CUL			/		
9	PACKING DRAWING	3PAA00386 A		1 PCS	/	02/09/02				TUV / VDE			/		
10	COMPONENTS DRAWING			PCS	/					NEMKO			/		
11	EMI REPORT		REV.: A	1 PCS	/	02/09/02				NORDIC			/		
12	PHASE / GAIN PLOT REPORT		REV.: A	1 PCS	/	02/09/02				DENTORI			/		
13	COMPONENT STRESS REPORT	201805		1 PCS	/	01/17/02				AUSTRALIA / CE MARK			/		
14	HALT REPORT	NA		1 PCS	/					CCIB			/		

PREPARED BY :

陳金玲

CONTENTS OF TECHNICAL

CUSTOMER : **DELL**
 MODEL NO : **PA-1900-05D**

DOC. NO : A202529
 ISSUE DATE : 03/01/2002

DESCRIPTION	REF. NO.	REV. NO	PAGE	ISS. DATE.
1.0 FIELD TEST CONFIRMATION				
1.1 NPPR FROM SALES DEPARTMENT	N-010902	-	1	09/05/2001
2.0 DOCUMENT				
2.1 DESIGN CHANGE LIST	-			
2.2 SCHEMATIC	EPS310710	B	1	02/09/2002
2.3 PARTS LIST	PA-1900-05D	01	5	02/25/2002
2.3.1 CRITICAL COMPONENT LIST	PA-1900-05D	G	2	02/09/2002
2.3.2 VENDOR LIST	PA-1900-05D	G	2	02/09/2002
2.4 PRODUCT SPECIFICATION	PA-1900-05D	C	8	02/09/2002
2.5 PCB ARTWORK(MB)	A1900-0X	B	6	02/09/2002
2.6 OUTLINE DRAWING	3OAA0047	A	1	02/09/2002
2.7 PACKING DRAWING	3PAA00386	A	1	02/09/2002
3.0 CUSTOM PARTS' DRAWING				
3.1 LABEL (MAIN/BAR CODE/REV)				
3.1.1 BAR CODE	93-133384	A	1	未承認
3.1.2 LBL-ID	93-601061			未承認
3.2 MANUAL	53-133297	A	1	-
3.3 CASE-TOP	46-132041	A	1	01/25/2002
CASE-BTM	46-132042	A	1	01/25/2002
3.4 BRACKET				
3.5 HEAT SINK				
3.5.1 HS1(Q001,Q050)	52-132043	A	1	01/25/2002
3.5.2 HS2(L200,Q200)	52-132044	A	1	01/25/2002
3.5.3 HS3(D050)	52-132045	A	1	01/25/2002
3.5.4 SH1(BTM)	52-132046	A	1	01/25/2002
3.5.5 SH2(BTM)	52-132047	B	1	02/06/2002
3.6 INSULATION SHEET				
3.7 MAGNETICS				
3.7.1 L001	37-133454	A	7	02/07/2002
3.7.2 L002	37-132641	A	7	01/25/2002
3.7.3 L003	37-126323	A	1	09/21/1999
3.7.4 L200	37-132093	A	7	01/25/2002
3.7.5 L010	37-132094	A	12	01/25/2002
3.7.6 T050	42-132092	A	15	02/01/2002
3.7.7 B003(D003-),B052(D052+)	37-125639	B	5	02/21/2002

CONTENTS OF TECHNICAL

CUSTOMER : **DELL**
 MODEL NO : **PA-1900-05D**

DOC. NO : A202529
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DESCRIPTION	REF. NO.	REV. NO	PAGE	ISS. DATE.
3.8 WIRE HARNESS				
3.8.1 DC CORD	04-132049	A	1	02/01/2002
3.8.2 J14	45-133393	A	1	02/06/2002
4.0 DFQ REPORT				
4.1 EMI TEST REPORT	-	A	9	02/09/2002
4.2 PHASE / GAIN PLOT	-	A	3	02/09/2002
4.3 COMPONENT STRESS REPORT	0201805	-	48	01/17/2002
4.4 HALT REPORT	-			
4.5 BETA TEST QUALIFICATION	D-020027	-	40	01/08/2002
4.6 QUALITY INSPECTION CRITIRIA	QN-2002008	A/A	10	02/20/2002
5.0 DFM REPORT				
5.1 MTR	-	C	8	02/09/2002
5.2 ASSEMBLING DRAWING	3AAA00459	A	1	02/09/2002
5.3 SPECIAL ASSEMBLING INSTRUCTIO	-	A	2	02/09/2002
5.4 Cpk DATA REPORT / FMEA SHEET /	PRR-0201020	-	55	01/27/2002
PCB SOLDERING ABILITY REPORT				
5.5 PROCESS MAINAGEMENT PROJEC	-	03	8	01/06/2002

NO APPROVAL PARTS

MODEL : PA-1900-05D

DATE : 02/26/2002

REV : 0G

PAGE : 1

TABLE NAME	ITEM	PARTNO	OLDPARTNO	DESCRIPTION	Q T Y	REASON	RESP. DEPT.
1. MAIN SOURCE FOR EE PARTS							
PL	3015	130242	31-S1474M5021	C.MON 0.47UF 50V M Y5V 1206	1		
2. SECOND SOURCE FOR EE PARTS							
PL	1001A	130825	33-BKBP208G47	BRG 800V 2A KBP208G	1		
PL	1013A	132612	34-FSTP10NK619	MFET N 600V10A0.75STP10NK60ZFP	1		
PL	3003B	130326	31-FE334MB557	C.MEX 0.33UF 275V M 15 3382	1		
PL	3004A	132096	31-F7121MD064	C.ELE 120UF 400V M 18*31.5 PT	1		
3. MAIN SOURCE FOR ME PARTS							
PL	6014	601061	93-M190005DL1	LBL-ID 59*46 HPA-1900-05D	1		
PL	8002	133297	53-M190005MN1	MANUAL 297*210 PA-1900-05D	.02858		

TOTAL 1 PAGES

會簽： 劉俊良 賴威列 易亞東 賴威列
 3/7/02 3/26/02 3/27/02

NPPR

賴威利 / 朱建華

TO: 工程 部

CC: 王 副 總 / 企 劃 處

研 發 處 / 品 保 處

FM: 業 務 處

SUBJ: New Projects Production Request

NPPR No.: A1-010902

DATE: Sep 5 '01

BUILD SITE: Taiwan

Malaysia

☒ Lite # 3

We have received customers final confirmation of purchasing order for our products. Relevant information are listed as below:

Part No: PA-19w-040 & PA-19w-050

Description: Dell 90w/16V & Dell 90w/20V adapter.

Customer: Dell & Quanta Order No: _____

Date: Sep. 5 '01 Total Order Quantity: _____

Request Delivery Schedule: 1. 10/10 x 100 1/2

2. 11/30 x 100 1/2 2. _____

3. _____ 4. _____

Average Capacity Per Month: 60k - 100k / M

Approval Sheet & Sample: _____

YES

Per Attached

NO

(reason): Project still in R&D

Should Customer Pay Following Charge Or Not?

1. Tooling Charge YES ☒ NO

2. Sample Charge ☒ YES NO

PLEASE TAKE YOUR PROMPT ACTION TO MEET THEIR REQUESTED SCHEDULE. IF YOU FIND ANY DIFFICULTY, YOU MUST LET US KNOW IN ADVANCE BY A RETURN MENO.

REMARK:

SALES ENGINEER

SALES MANAGER

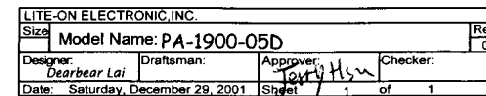
MKT'G & SALES DIR.

VICE PRESIDENT

CUSTOMER : DELL

REV. : A

[illegible]



EPS310710

LITE-ON ELECTRONICS, INC.
POWER CONVERSION

DOC STATUS

By Specific Model

MODEL : PA-1900-05D
UPDATE : 02/26/2002

DATE : 02/26/2002
PAGE : 1

PLREV	DCN NO.	DCN DATE	CLASS OF CHANGE	SPEC REV	CKT REV	PCB REV	PACK REV	OUTSIDE REV	REASON FOR CHANGE	INITIATOR	DEPT
01	A202529	03/01/2002	RELEASE	A190005D C	EPS310710 B	REV.: B	3PAA00386 A	30AA00474 A		Dearbear / Julian	SPS / ME

REASON FOR CHANGE : (1) PAPER CORRECTION (2) PURCHASING REQUEST (3) PRODUCTION REQUEST (4) STANDARDIZATION (5) COST REDUCTION (6) RELIABILITY
(7) SAFETY REQUEST (8) CUSTOMER REQUEST (9) NEW IDEA (10) DESIGN CHANGE (11) STOCK SALVAGE (12) OTHER REASON

CLASS OF CHANGE : A1 : Recall shipped products & Rework all Inventory and WIP. B2 : Implement within one month.
A2 : Stop shipment & Rework all Inventory and WIP. B3 : Implement from P/O # _____ (Lot # _____).
A3 : Rework Request as Sale's Instruction. B4 : Implement without obsolescence.
B1 : Implement from next lot or within one week. C1 : Implement from available.

TOTAL 1 PAGES

DESIGNER	Julian Lin Dearbear 2/27/02
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APPROVAL	Alex Yuen Dearbear 2/27/02 7/26/02
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LITE-ON ELECTRONICS, INC.
POWER CONVERSION

DEQ DOC STATUS

MODEL : PA-1900-05D
UPDATE : 02/26/2002

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ISSUE NO.	ISSUE DATE	AFC	HALT	CSR	EMI	Phase/Gain	DQE	INITIATOR	DEPT
- YB-A202529	03/01/2002	NA	NA	0201805	REV.:A	REV.:A	D-020027	Dearbear / Julian	SPS / ME

Note: (1) AFC:Application Feedback Collection
(4) DQE:Design Quality Evalution(Including Alpha Test & Beta Test)

(2) HALT:Highly Acceleration Life Test

(3) CSR:Component Stress Report

TOTAL 1 PAGE

DESIGNER	Julian Lin Dearbear 7/27/02
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APPROVAL	Alvin Y. Dearbear 7/26/02
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LITE-ON ELECTRONICS, INC.
POWER CONVERSION

DEM DOC STATUS

MODEL : PA-1900-05D
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DATE : 02/26/2002
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ISSUE NO.	ISSUE DATE	MTR	ASSY DRAW	S.A.I.	Cpk DOC	FMEA DOC	PMP	INITIATOR	DEPT
YB-A202529	03/01/2002	REV.: C	3AAA00459 A	REV.: A	0201020	0201020	REV.: 03	Dearbear / Julian	SPS / ME

Note: (1) S.A.I.:Special Assembling Instruction

(2) FMEA:Failure Mode Effect Analysis

(3) PMP:Process Management Project

TOTAL 1 PAGE

DESIGNER	Julian Liu Dearbear 2/27/02
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APPROVAL	Alex Yon Dearbear 2/26/02
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LITE-ON ELECTRONICS, INC.
POWER CONVERSION

DFM DOC STATUS

MODEL : PA-1900-05D
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ISSUE NO.	ISSUE DATE	MTR	ASSY DRAW	S.A.I.	Cpk DOC	FMEA DOC	PMP	INITIATOR	DEPT
YB-A202529	03/01/2002	REV.: C	3AAA00459 A	REV.: A	0201020	0201020	REV.: 03	Dearbear / Julian	SPS / ME

Note: (1) S.A.I.:Special Assembling Instruction

(2) FMEA:Failure Mode Effect Analysis

(3) PMP:Process Management Project

TOTAL 1 PAGE

DESIGNER	Julian Liu. Dearbear 7/27'02
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APPROVAL	Alvin Yuen Rombard 7/26'02
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LITE-ON ELECTRONICS, INC.
POWER CONVERSION

PARTS LIST

MASS PRODUCTION

MODEL : PA-1900-05D
REV : 01
UPDATE : 02/26/2002

DATE : 02/27/2002
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ITEM	U	F	R	C	PARTNO	OLD PART NO.	DESCRIPTION	MAKER	MAKER PART NO.	FILE NO.	LOCATION	QTY
1001					130824	33-B2KBP08M12	BRG 800V 2A 2KBP08M	GS	2KBP08M	RD-AP0106055F	D050	1.00000
1001A					130825	33-BKBP208G47	BRG 800V 2A KBP208G					1.00000
1001B					130826	33-BKBP208G13	BRG 800V 2A KBP208G	LITON	KBP208G	RD-AP0106054B		1.00000
1002			*		132638	34-FSTP40NF10L	MFET N 100V 40A0.028STP40NF10L	STM	STP40NF10L	RD-AP0201125A	Q200,Q201	2.00000
1002A			*		132637	34-FIRFB59N10D	MFET N 100V 59A0.025IRFB59N10D	IR	IRFB59N10D	RD-AP0201105A		2.00000
1002B			*		132639	34-FPHP45NQ10T	MFET N 100V 45A0.025PHP45NQ10T	PHLIP	PHP45NQ10T	RD-AP0201123A		2.00000
1002C			*		132088	34-FIRFB471020	MFET N 100V 75A 0.014 IRFB4710	IR	IRFB4710	RD-AP0201127A		2.00000
1002D			*		132254	34-FSTP80NF10	MFET N 100V 80A 0.015STP80NF10	STM	STP80NF10	RD-AP0201057A		2.00000
1002E			*		132202	34-FPSMN01518	MFET N100V75A0.015PSMN015-100P	PHLIP	PSMN015-100P	RD-AP0201124A		2.00000
1003					123798	33-SLL4148GS24	DIO 75V 0.2A LL4148GS08 LL34	TEMIC	LL4148GS08	RD-AP9812127A	D001,D004,D102,D101,D201, D202,D203	7.00000
1003A					900351	33-SRLS414814	DIO 75V 0.2A RLS4148 LL34	ROHM	RLS4148	RD-AP9804084B		7.00000
1003B					126869	33-SLL414812	DIO 75V 0.2A LL4148 S0D80C	GS	LL4148	RD-AP9911132A		7.00000
1003C					123797	33-SBAS32L18	DIO 75V 0.2A BAS32L LL34	PHLIP	BAS32L	RD-AP9901025A		7.00000
1004			*		123149	34-F2SK2842	MFET N 500V 12A 0.52 2SK2842	TOSHB	2SK2842	RD-AP9803100A	Q001	1.00000
1005					124389	33-R1N400712	DIO 1000V 1A 1N4007 D041	GS	1N4007	RD-AP9812097B	D052	1.00000
1005A					124388	33-R1N400711	DIO 1000V 1A 1N4007 D041	MOTOR	1N4007	RD-AP9809062A		1.00000
1005B					117645	33-R1N400713	DIO 1000V 1A 1N4007 D041	LITON	1N4007	RD-AP9812067D		1.00000
1006					123782	33-SBAS2118	DIO 200V 0.2A BAS21 SOT23	PHLIP	BAS21	RD-AP9901111A	D051	1.00000
1006A					126255	33-SBAS2112	DIO 200V 0.2A BAS21 SOT23	GS	BAS21	RD-AP9908099A		1.00000
1006B					123783	33-SBAS21LT111	DIO 200V 0.2A BAS21LT1SOT23	MOTOR	BAS21LT1	RD-AP9808109A		1.00000
1007			*		124445	32-SL6561D19	IC PWM 8P L6561D SMD STM	STM	L6561D	RD-AP0007046A	IC1	1.00000
1008					123358	34-SKST440326	TRX PNP 40V 0.6A KST4403 SOT23	SAMSU	KST4403	RD-AP9902063A	Q005,Q203,Q205	3.00000
1008A					123357	34-SMMST440314	TRX PNP 40V 0.6A MMST4403SOT23	ROHM	MMST4403	RD-AP9902010B		3.00000
1008B					128569	34-SKN4403S49	TRX PNP40V0.6A KN4403S SOT23	KEC	KN4403S	RD-AP0106086A		3.00000
1008C					127305	34-SMMBT440311	TRX PNP40V0.6AMMBT4403LT1SOT23	ON	MMBT4403LT1	RD-AP0201126A		3.00000
1009			*		130127	32-SLTA201P	IC PWM 14P LTA201P SMD	PHLIP	LTA201P	RD-AP0111032A	IC100	1.00000
1010			*		125223	32-STSM103AID	IC OPA 8P TSM103AID SMD	STM	TSM103AID	RD-AP9903097A	IC302	1.00000
1011					123354	34-SMMST440114	TRX NPN 40V 0.6A MMST4401SOT23	ROHM	MMST4401	RD-AP9901125A	Q065,Q102,Q206	3.00000
1011A					123355	34-SKST440126	TRX NPN 40V 0.6A KST4401 SOT23	SAMSU	KST4401	RD-AP9811120A		3.00000
1011B					128567	34-SKN4401S49	TRX NPN40V0.6A KN4401S SOT23	KEC	KN4401S	RD-AP0106085A		3.00000
1012					129842	33-SBZX84C15A	Z.D 0.35W 15V BZX84-C15 SOT23	GS	BZX84-C15	RD-AP0109043E	ZD065,ZD200,ZD201,ZD202	4.00000
1012A					129843	33-SBZX84C1518	Z.D 0.25W 15V BZX84-C15 SOT23	PHLIP	BZX84-C15	RD-AP0202101K		4.00000
1013			*		122444	34-F2SK2843	MFET N 600V 10A 0.54 2SK2843	TOSHB	2SK2843	RD-AP9712072A	Q050	1.00000
1013A			*		132612	34-FSTP10NK619	MFET N 600V10A0.75STP10NK60ZFP					1.00000
1014					123363	34-S2N700218	MFET N 60V 0.115A 2N7002SOT23	PHLIP	2N7002	RD-AP9901038A	Q002,Q103,Q204	3.00000
1014A					123364	34-S2N700211	MFET N60V0.115A2N7002LT1SOT23	MOTOR	2N7002LT1	RD-AP9901039A		3.00000
1014B					129615	34-S2N700212	MFET N 60V 0.23A 2N7002 SOT23	GS	2N7002	RD-AP0104121A		3.00000
1015					127499	LTL-1CHGE	LED CIR LTL-1CHGE GREE	LITON	LTL-1CHGE	RD-AP0004034A	LED	1.00000

LITE-ON ELECTRONICS, INC.
POWER CONVERSION

PARTS LIST

MASS PRODUCTION

MODEL : PA-1900-05D
REV : 01
UPDATE : 02/26/2002

DATE : 02/27/2002
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ITEM	U	F	R	C	PARTNO	OLD PART NO.	DESCRIPTION	MAKER	MAKER PART NO.	FILE NO.	LOCATION	QTY
1016					114634	33-SMMBZ5254BL	Z.D 0.225W27V MMBZ5254BL S0T23	ON	MMBZ5254BLT1	RD-AP0111025L	ZD001	1.00000
1016A					114757	33-SBZX84-C27	Z.D 0.25W 27V BZX84-C27 S0T23	PHILIP	BZX84-C27	RD-AP0202101K		1.00000
1017		*	*		124124	LTV-817MA	IC PHO 4P LTV-817M-PRA 100-160	LITON	LTV-817M-PRA	RD-AP9905007I	PC300,PC301	2.00000
1017A			*		122708	32-PS2561L11VH	IC PHO 4P PS2561L1-1VH 80-160	NEC	PS2561L1-1-VH	RD-AP9910031D		2.00000
1017B			*		126256	32-PC123Y62	IC PHO 4P PC123Y62 80-160	SHARP	PC123Y62	RD-AP9908111A		2.00000
1029			*		126076	33-RMUR46012	DIO 600V 4A MUR460 GS	GS	MUR460	RD-AP0004010A	D003	1.00000
1029A			*		122830	33-RMUR460	DIO 600V 4A MUR460	MOTOR	MUR460	RD-AP9912103B		1.00000
2001					117831	30-S205J4SA	R.CF 2M 1/4W J 1206	YAGEO	30-S205J4SA	RD-AP0104140H	R001,R002	2.00000
2002					119943	30-S494F4SA9	R.MF 499K 1/4W F 1206	YAGEO	30-S494F4SA9	RD-AP0104140H	R006,R007	2.00000
2003					127736	30-S102F10SA	R.MF 1K 1/10W F 0603	YAGEO	30-S102F10SA	RD-AP0104140H	R120,R207,R209	3.00000
2004					127424	30-S103F10SA	R.MF 10K 1/10W F 0603	YAGEO	30-S103F10SA	RD-AP0104140H	R068,R106,R124,R208,R307, R316	6.00000
2005					120107	30-FG104JASS	R.MO 100K 1W(S) J	QUMAO	30-FG104JASS	RD-AP0106023Q	R050	1.00000
2006					113678	30-S470J4SA	R.CF 47 1/4W J 1206	YAGEO	30-S470J4SA	RD-AP0104140H	R200,R201	2.00000
2007					112838	30-S470J8SA	R.CF 47 1/8W J 0805	YAGEO	30-S470J8SA	RD-AP0104140H	R016,R102,R122	3.00000
2008					124985	30-FG10BJASS	R.MO 0.1 1W(S) J	QUMAO	30-FG10BJASS	RD-AP0106023Q	R051	1.00000
2009					132095	30-FZ50DJ101	R.ZW 0.005 1.0D J 10 CN30W	TAI	MR10JCB0050P	RD-AP0110140A	R211	1.00000
2010					127643	30-S203J10SA	R.CF 20K 1/10W J 0603	YAGEO	30-S203J10SA	RD-AP0104140H	R005	1.00000
2011					127436	30-S000J10SA	R.CF 0 1/10W J 0603	YAGEO	30-S000J10SA	RD-AP0104140H	J1,J2,J7,J10,J11,JP3	6.00000
2012					119896	30-S300J8SA	R.CF 30 1/8W J 0805	YAGEO	30-S300J8SA	RD-AP0104140H	R017,R107,R203	3.00000
2013					113310	30-S204J4SA	R.CF 200K 1/4W J 1206	YAGEO	30-S204J4SA	RD-AP0104140H	R126	1.00000
2015					128156	30-S204F10SA	R.MF 200K 1/10W F 0603	YAGEO	30-S204F10SA	RD-AP0104140H	R305	1.00000
2016					128039	30-S471J10SA	R.CF 470 1/10W J 0603	YAGEO	30-S471J10SA	RD-AP0104140H	R121	1.00000
2017					132989	30-S594F10SA	R.MF 590.0K 1/10W F 0603	YAGEO	30-S594F10SA	RD-AP0104140H	R024	1.00000
2018					127668	30-S100J10SA	R.CF 10 1/10W J 0603	YAGEO	30-S100J10SA	RD-AP0104140H	R105	1.00000
2019					127618	30-S302F10SA1	R.MF 3.01K 1/10W F 0603	YAGEO	30-S302F10SA1	RD-AP0104140H	R123,R012	2.00000
2020					130523	30-S353F10SA7	R.MF 35.7K 1/10W F 0603	YAGEO	30-S353F10SA7	RD-AP0104140H	R301	1.00000
2021					127846	30-S512F10SA1	R.MF 5.11K 1/10W F 0603	YAGEO	30-S512F10SA1	RD-AP0104140H	R302	1.00000
2022					130283	30-S220J10SA	R.CF 22 1/10W J 0603	YAGEO	30-S220J10SA	RD-AP0104140H	R206	1.00000
2023					128126	30-S204F10SA5	R.MF 205K 1/10W F 0603	YAGEO	30-S204F10SA5	RD-AP0104140H	R025	1.00000
2024					114497	30-FJ104K01	R.TH TTC 100K K 5D 1.5MA	THINK	TTC-104K	RD-AP9508068A	RT100	1.00000
2025					127422	30-S111J10SA	R.CF 110 1/10W J 0603	YAGEO	30-S111J10SA	RD-AP0104140H	R300	1.00000
2026					127617	30-S201J10SA	R.CF 200 1/10W J 0603	YAGEO	30-S201J10SA	RD-AP0104140H	R303	1.00000
2027					128337	30-S514F10SA1	R.MF 511K 1/10W F 0603	YAGEO	30-S514F10SA1	RD-AP0104140H	R011	1.00000
2028					114238	30-S150J8SA	R.CF 15 1/8W J 0805	YAGEO	30-S150J8SA	RD-AP0104140H	R065	1.00000
2029					132987	30-S454F10SA3	R.MF 453.0K 1/10W F 0603	YAGEO	30-S454F10SA3	RD-AP0104140H	R103	1.00000
2030					121255	30-FG24BJASS	R.MO 0.24 1W(S) J	QUMAO	30-FG24BJASS	RD-AP0106023Q	R014	1.00000
2031					116936	30-S106J4SA	R.CF 10M 1/4W J 1206	YAGEO	30-S106J4SA	RD-AP0104140H	R61,R62,R63,R64	4.00000
2032					128344	30-S143F10SA	R.MF 14K 1/10W F 0603	YAGEO	30-S143F10SA	RD-AP0104140H	R008-1	1.00000

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2033					128512	30-S683J10SA	R.CF 68K 1/10W J 0603	YAGEO	30-S683J10SA	RD-AP0104140H	R013	1.00000
2034					129538	30-S113F10SA5	R.MF 11.5K 1/10W F 0603	YAGEO	30-S113F10SA5	RD-AP0104140H	R008,R315	2.00000
2035					127647	30-S242F10SA9	R.MF 2.49K 1/10W F 0603	YAGEO	30-S242F10SA9	RD-AP0104140H	R067	1.00000
2036					112817	30-S105J8SA	R.CF 1M 1/8W J 0805	YAGEO	30-S105J8SA	RD-AP0104140H	R003,R004,R009,R010,R022, R023	6.00000
2037					128299	30-S252F10SA5	R.MF 2.55K 1/10W F 0603	YAGEO	30-S252F10SA5	RD-AP0104140H	R306	1.00000
2038					107939	04-J21E01	JUMPER 0.5D BT RUCH	JUNK	04-J21E01	RD-AP0006099F	J6(17.5MM*1)	0.00005
2039					107939	04-J21E01	JUMPER 0.5D BT RUCH	JUNK	04-J21E01	RD-AP0006099F	JP1(10MM*1)	0.00009
2040					107939	04-J21E01	JUMPER 0.5D BT RUCH	JUNK	04-J21E01	RD-AP0006099F	J3(12.5MM*1)	0.00009
2041					107939	04-J21E01	JUMPER 0.5D BT RUCH	JUNK	04-J21E01	RD-AP0006099F	J4,J5,J9,J12(7.5MM*4)	0.00036
2042					107939	04-J21E01	JUMPER 0.5D BT RUCH	JUNK	04-J21E01	RD-AP0006099F	J13(5MM*1)	0.00009
2043					120773	30-S622J8SA	R.CF 6.2K 1/8W J 0805	YAGEO	30-S622J8SA	RD-AP0104140H	R210	1.00000
2044					128514	30-S225J10SA	R.CF 2.2M 1/10W J 0603	YAGEO	30-S225J10SA	RD-AP0104140H	R104	1.00000
2045					128070	30-S124F10SA1	R.MF 121K 1/10W F 0603	YAGEO	30-S124F10SA1	RD-AP0104140H	R306-1	1.00000
2046					112818	30-S103J8SA	R.CF 10K 1/8W J 0805	YAGEO	30-S103J8SA	RD-AP0104140H	R202	1.00000
2047					127616	30-S301J10SA	R.CF 300 1/10W J 0603	YAGEO	30-S301J10SA	RD-AP0104140H	R304	1.00000
2048					113769	30-S000J4SA	R.CF 0 1/4W J 1206	YAGEO	30-S000J4SA	RD-AP0104140H	JP2	1.00000
3001					124509	31-FE474KD056	C.MEF 0.47UF 400V K 15 ECQE(F)	MATSU	ECQE4474KF	RD-AP9903067B	C002,C003	2.00000
3001A					126315	31-FE474KD0	C.MEF 0.47UF 400V K 15 DMPE	EUR	DMPE474K400V	RD-AP0008090Q		2.00000
3002		*	*		114652	31-F1222MD0581	C.DIS 2200PF 400V M E 10 CD	TDK	CD12E2GA222MYGS	RD-AP0006097H	C006	1.00000
3002A		*	*		121145	31-F1222MB5542	C.DIS 2200PF 250V M E 10 KX	MURAT	DE1210E222M-KX	RD-AP9904073B		1.00000
3002B			*		126254	31-F1222MD0592	C.DIS 2200PF 400V M E 10 NSA	MATSU	ECKANA222ME	RD-AP9908012A		1.00000
3003			*		126283	31-FE334MB556	C.MEX 0.33UF 275V M 15 ECQUL	MATSU	ECQU2A334ML	RD-AP9910085C	C001	1.00000
3003A			*		126058	31-FE334MB5542	C.MEX 0.33UF 275V M 15 R46	ARCO	R46KI333050M1M	RD-AP0201128D		1.00000
3003B			*		130326	31-FE334MB557	C.MEX 0.33UF 275V M 15 3382					1.00000
3003C			*		130324	31-FE334KB5502	C.MEX 0.33UF 275V K 15 KNB1560	ISKRA	KNB1560-0.33UF	RD-AP0108065B		1.00000
3004			*		132221	31-F7121MD0523	C.ELE 120UF 400V M 18*31.5 KMG	NCC	KMG400VB120M	RD-AP0112142R	C051	1.00000
3004A			*		132096	31-F7121MD064	C.ELE 120UF 400V M 18*31.5 PT					1.00000
3004B			*		131088	31-F7121MD056	C.ELE 120UF 400V M 18*30 GH	MATSU	EEUGH2G121S	RD-AP0111091A		1.00000
3004C			*		132288	31-F7121MD0586	C.ELE 120UF 400V M 18*30 KXW	QUMA0	31-F7121MD0586	RD-AP0102079J		1.00000
3005					119231	31-S1104KA02	C.MON 0.1UF 100V K X7R 1206	WALSN	31-S1104KA02	RD-AP0104009J	C008	1.00000
3006					120832	31-F7220M50581	C.ELE 22UF 50V M 5*11 YXF 5T	RUBCO	50YXF22M	RD-AP0108124R	C054	1.00000
3006A		*			122348	31-F7220M50582	C.ELE 22UF 50V M 5*11 YXG	RUBCO	50YXG22	RD-AP0201173P		1.00000
3006B					112684	31-F7220M50522	C.ELE 22UF 50V M 5*11 5T 105C	NCC	KME50VB-22M	RD-AP01081531		1.00000
3007					128042	31-S1224M166	C.MON 0.22UF 16V M Y5V 0603	WALSN	31-S1224M166	RD-AP0104009J	C123,C124	2.00000
3008					118178	31-S1332KE02	C.MON 3300PF 500V K X7R 1206	AVX	12067C332K	RD-AP0104056N	C053	1.00000
3008A					119113	31-S1332KF32	C.MON 3300PF 630V K X7R 1206	MURAT	31-S1332KF32	RD-AP0104056N		1.00000
3009					127659	31-S1104K166	C.MON 0.1UF 16V K X7R 0603	WALSN	31-S1104K166	RD-AP0104009J	C009,C109,C125,C201,C300, C301,C304,C306	7.00000

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3010		*			122390	31-S1221JB01	C.MON 220PF 200V J NP0 0805	WALSN	31-S1221JB01	RD-AP0104009J	C122,C200	2.00000
3011					128129	31-S1223K256	C.MON 0.022UF 25V K X7R 0603	WALSN	31-S1223K256	RD-AP0104009J	C120	1.00000
3012		*			125418	31-F7102M25584	C.ELE 1000UF 25V M 12.5*20 ZL	RUBCO	25ZL1000M	RD-AP0110129D	C204	1.00000
3012A					132220	31-F7102M25529	C.ELE 1000UF 25V M 12.5*20 KEZ	NCC	KZE25VB1025MK20	RD-AP0201160B		1.00000
3013					124855	31-F7471M25582	C.ELE 470UF 25V M 10*16 YXG	RUBCO	25YXG470	RD-AP0201173P	C205	1.00000
3013A					128986	31-F7471M25525	C.ELE 470UF 25V M 10*16 KY	NCC	KY25VB470M	RD-AP0112117B		1.00000
3014					112887	31-F7100M50522	C.ELE 10UF 50V M 5*11 5T 105C	NCC	KME50VB-10M	RD-AP01081531	C010,C054-1	2.00000
3014A					130352	31-F7100M50582	C.ELE 10UF 50V M 5*11 5T YXG	RUBCO	50YXG10	RD-AP0201173P		2.00000
3014B					117362	31-F7100M50524	C.ELE 10UF 50V M 5*11 KMF 5T	NCC	KMF50VB-10M	RD-AP9909062K		2.00000
3015					130242	31-S1474M5021	C.MON 0.47UF 50V M Y5V 1206	WALSN			C024	1.00000
3016					128133	31-S1105Z161	C.MON 1UF 16V Z Y5V 0805	WALSN	31-S1105Z161	RD-AP0104009J	C005,C005-1	2.00000
3017					125521	31-F7331M25582	C.ELE 330UF 25V M 8*16 YXG	RUBCO	25YXG330	RD-AP0201173P	C206	1.00000
3018					128403	31-S1103Z506	C.MON 0.01UF 50V Z Y5V 0603	WALSN	31-S1103Z506	RD-AP0104009J	C004	1.00000
3019					104923	31-F1221KAK	C.DIS 220PF 1KV K Y5P 5T	NICLA	N5Y5P1B221K	RD-AP0103018U	C011	1.00000
3020					108987	31-F1471KAK	C.DIS 470PF 1KV K Y5P 5T	NICLA	N5Y5P1B471K	RD-AP0103018U	C050	1.00000
3021					128158	31-S1105M106	C.MON 1UF 10V M Y5V 0603	WALSN	31-S1105M106	RD-AP0104009J	C068,C303,C303-1	3.00000
4002			*		133454	37-C19000505	CHOKE FR12*6*4 SM100-2	LITON	37-C19000505	RD-AP0202061A	L001	1.00000
4003			*		132641	37-C19000504	CHOKE FR16*12*8 SM100	LITON	37-C19000504	RD-AP0201122A	L002	1.00000
4004			*		126323	37-C17000501	CHOKE T60-26 300UH +/-13%	LITON	37-C17000501	RD-AP9909069A	L003	1.00000
4006			*		132093	37-C19000501	CHOKE TR9*5*3 R7K 150T	LITON	37-C19000501	RD-AP0201121A	L200	1.00000
4007			*		132094	37-C19000502	CHOKE A1900-05 RM10 NC2H	LITON	37-C19000502	RD-AP0201149A	L010	1.00000
4008			*		132092	42-M190005P01	XFMR A1900-05 C30/19-52 PC40	LITON	42-M190005P01	RD-AP0202002A	T050	1.00000
4013		*			125639	37-C15301902	BEAD CORD RH3.5*9*1.3 A6	LITON	37-C15301902	RD-AP0202108B	R003(D003-1,B052(D052+1)	2.00000
5001					132049	04-PM19000501	DC CORD 1800 PA-1900-05D	GTLIN	04-PM19000501	RD-AP0202003A	DC CORD	1.00000
5002					133393	45-M190005TN1	T-PIN 4*1.7	LITON	45-M190005TN1	RD-AP0202046A	J14	1.00000
6001					132041	46-M190005CS1	CASE-TOP 133*58*13 PC	ALLEN	46-M190005CS1	RD-AP0201150A	CSA00(CASE-TOP)	1.00000
6002					132042	46-M190005CS2	CASE-BTM 133*58*16 PC	ALLEN	46-M190005CS2	RD-AP0201151A	CSA01(CASE-BTM)	1.00000
6003					132043	52-M190005HS1	HEAT SINK 104*19*3 AL	KGM	52-M190005HS1	RD-AP0201156A	HS1(Q001,Q050)	1.00000
6004					132044	52-M190005HS2	HEAT SINK 80*19*3 AL	KGM	52-M190005HS2	RD-AP0201155A	HS2(L200,Q200)	1.00000
6005					132045	52-M190005HS3	HEAT SINK 22*22*1.5 AL	KGM	52-M190005HS3	RD-AP020154A	HS3(D050)	1.00000
6006					132046	52-M190005SH1	SHIELD 120*20*1.5 AL	KGM	52-M190005SH1	RD-AP0201153A	SH1(TOP)	1.00000
6007					132047	52-M190005SH2	SHIELD 119*42*0.3 CU	KGM	52-M190005SH2	RD-AP0202050B	SH2(BTM)	1.00000
6008					132048	28-M190005PL1	ISL-PLT+T 124*52*0.45 FRPP	L&D	28-M190005PL1	RD-AP0201110A	ISA(BTM)	1.00000
6009					101131	50-S18300802	SCREW+M CH 3*0.5*8 NI	KOFEI	50-S18300802	RD-AP0107008F	SCA00(Q200,Q201,Q001,Q050)	4.00000
6010					133384	93-M190005BC1	BAR CODE 48*14	CHMAY	93-M190005BC1	RD-AP0202007A	LBA01(CASE-BTM)	4.00000
6011					108239	50-AM420112	NUT+W 3*0.5*3.4 NI	WIEN	50-AM420112	RD-AP9711077B	NTA00(HS1,HS2)	4.00000
6012					132154	50-S15250401	SCREW+M TF 2.5*0.45*4 NI	WEIN	50-S15250401	RD-AP0201061A	SH1	1.00000
6013					114850	43-M13601SR1	RUBBER BUMPER 46*8*1.5 RB B	SMS	43-M13601SR1	RD-AP0111058C	RBA00(CASE-BTM)	2.00000
6014					601061	93-M190005DL1	LBL-ID 59*46 HPA-1900-05D				LBA00(CASE-BTM)	1.00000

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7001			*		132038	38-T32A0825	FUSE HSB 250V 3.15A TE5-T	WKMAN	392-SERIES	RD-AP0111116A	F001	1.00000
7002					132151	01-M1900051BD	PCB A1900-0X 127*52*1.2 2/0 B	HSINT	01-M1900051BD	RD-AP0202022A	MAIN PCB	1.00000
7003		*			125656	43-M153002PG1	INLET 250V 2.5A 0724-PP	IAW	0724-PP	RD-AP0003131C	INLET	1.00000
8001					127728	92-MUC7	OUT-CTN 543*365*167	ESY	92-MUC7	RD-AP0202117H	CTN	0.02858
8002					133297	53-M190005MN1	MANUAL 297*210 PA-1900-05D					0.02858
8003					132131	91-M190004PL1	PA PLT LAY 543*365*167*7	YUANG	91-M190004PL1	RD-AP0201060A		0.02858
8004					114367	90-M23402PG3	PE BAG 480*125*0.08	HWAJI	90-M23402PG3	RD-AP9805108B		1.00000
8005					129792	55-MPA1	PALLET 1170*1140*131	LITON	55-MPA1	RD-AP0101068A		0.00096
9001		*	*		120289	07-0184503A	POLY TAPE 18*45M(2L) #40/#44	3M	#44-2L	RD-AP0105056C	D050(0.012M*1)	0.01200
9002		*			120289	07-0184503A	POLY TAPE 18*45M(2L) #40/#44	3M	#44-2L	RD-AP0105056C	D050(0.022M*1)	0.02200
9003		*			120289	07-0184503A	POLY TAPE 18*45M(2L) #40/#44	3M	#44-2L	RD-AP0105056C	L003(0.012M*1)	0.01200
9004		*			120289	07-0184503A	POLY TAPE 18*45M(2L) #40/#44	3M	#44-2L	RD-AP0105056C	C051(0.018M*1)	0.01800
9005		*			120209	04-T35C15010	TUBE-TEF 0.15*1.07 200C 150V C	ZEUS	TFE-TW-150	RD-AP9611084D	J6	0.01600
9006					132128	28-M190004PL1	ISL-PLT+T 133*58(3L) 3M #1350	L&D	28-M190004PL1	RD-AP0201109A	SH1(TOP)	1.00000
9007					132129	28-M190004PL2	ISL-PLT+T 52*36(3L) 3M #1350	L&D	28-M190004PL2	RD-AP0201107A	HS2	1.00000
9008					132130	28-M190004PL4	ISL-PLT+T 36*34(3L) 3M #1350	L&D	28-M190004PL3	RD-AP0202051B	HS1	1.00000
9009		*			116377	04-T14B20010	TUBE-HST 0.20*1.0 125C 600V B	SUMIT	04-T14B20010	RD-AP0112132N	C050(0.015M*1)	0.01500
9010		*			103847	04-T14B25080	TUBE-HST 0.25*8.0 125C 600V B	SUMIT	04-T14B25080	RD-AP0112132N	D052(0.012M*1)	0.01200
9011		*			103847	04-T14B25080	TUBE-HST 0.25*8.0 125C 600V B	SUMIT	04-T14B25080	RD-AP0112132N	D003(0.016M*1)	0.01600
9012		*			103301	04-T14B25120	TUBE-HST 0.25*12.0 125C 600V B	SUMIT	04-T14B25120	RD-AP0112132N	L001(0.015M*1)	0.01500
9013		*			123236	07-0156603W	POLY TAPE 15*66M W #1350 3M	LITON	#1350F	RD-AP0107129E	L200(0.007M*1)	0.00700
9014		*			116377	04-T14B20010	TUBE-HST 0.20*1.0 125C 600V B	SUMIT	04-T14B20010	RD-AP0112132N	C050(0.017M*1)	0.01700

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REMARK : U (*)-If cUstom parts F (*)-If saFety parts R (*)-cRitical C (*)-If Consign parts ITEM (-numeric)-If subcontract parts ITEM (-character)-If substitution parts

Note : This part list is prepared by Design department for cost estimation.

All of indirect material as solder, flux, glue, thinner, cleaner etc. are not listed on this part list.

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ITEM	U	F	R	C	PARTNO	OLD PART NO.	DESCRIPTION	MAKER	MAKER PART NO.	FILE NO.	LOCATION	QTY
1002			*		132638	34-FSTP40NF10L	MFET N 100V 40A0.028STP40NF10L	STM	STP40NF10L	RD-AP0201125A	Q200,Q201	2.00000
1002A			*		132637	34-FIRFB59N10D	MFET N 100V 59A0.025IRFB59N10D	IR	IRFB59N10D	RD-AP0201105A		2.00000
1002B			*		132639	34-FPHP45NQ10T	MFET N 100V 45A0.025PHP45NQ10T	PHLIP	PHP45NQ10T	RD-AP0201123A		2.00000
1002C			*		132088	34-FIRFB471020	MFET N 100V 75A 0.014 IRFB4710	IR	IRFB4710	RD-AP0201127A		2.00000
1002D			*		132254	34-FSTP80NF10	MFET N 100V 80A 0.015STP80NF10	STM	STP80NF10	RD-AP0201057A		2.00000
1002E			*		132202	34-FPSMN01518	MFET N100V75A0.015PSMN015-100P	PHLIP	PSMN015-100P	RD-AP0201124A		2.00000
1004			*		123149	34-F2SK2842	MFET N 500V 12A 0.52 2SK2842	TOSHB	2SK2842	RD-AP9803100A	Q001	1.00000
1007			*		124445	32-SL6561D19	IC PWM 8P L6561D SMD STM	STM	L6561D	RD-AP0007046A	IC1	1.00000
1009			*		130127	32-SLTA201P	IC PWM 14P LTA201P SMD	PHLIP	LTA201P	RD-AP0111032A	IC100	1.00000
1010			*		125223	32-STSM103AID	IC OPA 8P TSM103AID SMD	STM	TSM103AID	RD-AP9903097A	IC302	1.00000
1013			*		122444	34-F2SK2843	MFET N 600V 10A 0.54 2SK2843	TOSHB	2SK2843	RD-AP9712072A	Q050	1.00000
1013A			*		132612	34-FSTP10NK619	MFET N 600V10A0.75STP10NK60ZFP					1.00000
1017		*	*		124124	LTV-817MA	IC PHO 4P LTV-817M-PRA 100-160	LITON	LTV-817M-PRA	RD-AP9905007I	PC300,PC301	2.00000
1017A		*	*		122708	32-PS2561L11VH	IC PHO 4P PS2561L1-1VH 80-160	NEC	PS2561L1-1-VH	RD-AP9910031D		2.00000
1017B		*	*		126256	32-PC123Y62	IC PHO 4P PC123Y62 80-160	SHARP	PC123Y62	RD-AP9908111A		2.00000
1029			*		126076	33-RMUR46012	DIO 600V 4A MUR460 GS	GS	MUR460	RD-AP0004010A	D003	1.00000
1029A			*		122830	33-RMUR460	DIO 600V 4A MUR460	MOTOR	MUR460	RD-AP9912103B		1.00000
3002		*	*		114652	31-F1222MD0581	C.DIS 2200PF 400V M E 10 CD	TDK	CD12E2GA222MYGS	RD-AP0006097H	C006	1.00000
3002A		*	*		121145	31-F1222MB5542	C.DIS 2200PF 250V M E 10 KX	MURAT	DE1210E222M-KX	RD-AP9904073B		1.00000
3002B			*		126254	31-F1222MD0592	C.DIS 2200PF 400V M E 10 NSA	MATSU	ECKANA222ME	RD-AP9908012A	C001	1.00000
3003			*		126283	31-FE334MB556	C.MEX 0.33UF 275V M 15 ECQL	MATSU	ECQU2A334ML	RD-AP9910085C		1.00000
3003A			*		126058	31-FE334MB5542	C.MEX 0.33UF 275V M 15 R46	ARCO	R46KI333050M1M	RD-AP0201128D		1.00000
3003B			*		130326	31-FE334MB557	C.MEX 0.33UF 275V M 15 3382					1.00000
3003C			*		130324	31-FE334KB5502	C.MEX 0.33UF 275V K 15 KNB1560	ISKRA	KNB1560-0.33UF	RD-AP0108065B	C051	1.00000
3004			*		132221	31-F7121MD0523	C.ELE 120UF 400V M 18*31.5 KMG	NCC	KMG400VB120M	RD-AP0112142R		1.00000
3004A			*		132096	31-F7121MD064	C.ELE 120UF 400V M 18*31.5 PT					1.00000
3004B			*		131088	31-F7121MD066	C.ELE 120UF 400V M 18*30 GH	MATSU	EEUGH2G121S	RD-AP0111091A		1.00000
3004C			*		132288	31-F7121MD0586	C.ELE 120UF 400V M 18*30 KXW	QUMAO	31-F7121MD0586	RD-AP0102079J		1.00000
4002			*		132640	37-C19000503	CHOKE TR12*6*4 SM100	LITON	37-C19000503	RD-AP0201158A	L001	1.00000
4003			*		133454	37-C19000505	CHOKE FR12*6*4 SM100-2				L002	1.00000

LITE-ON ELECTRONICS, INC.
POWER CONVERSION

Design Critical Parts List

MODEL : PA-1900-05D
UPDATE : 2002/1/28
REV : 0G

DATE : 2002/2/18
PAGE : 2

ITEM	U	F	R	C	PARTNO	OLD PART NO.	DESCRIPTION	MAKER	MAKER PART NO.	FILE NO.	LOCATION	QTY
4004			*		126323	37-C17000501	CHOKE T60-26 300UH +-13%	LITON	37-C17000501	RD-AP9909069A	L003	1.00000
4006			*		132093	37-C19000501	CHOKE TR9*5*3 R7K 150T	LITON	37-C19000501	RD-AP0201121A	L200	1.00000
4007			*		132094	37-C19000502	CHOKE A1900-05 RM10 NC2H	LITON	37-C19000502	RD-AP0201149A	L010	1.00000
4008			*		132092	42-M190005P01	XFMR A1900-05 C30/19-52 PC40	LITON	42-M190005P01	RD-AP0202002A	T050	1.00000
7001			*		132038	38-T32A0825	FUSE HSB 250V 3.15A TE5-T	WKMAN	392-SERIES	RD-AP0111116A	F001	1.00000
9001		*	*		120289	07-O184503A	POLY TAPE 18*45M(2L) #40/#44	3M	#44-2L	RD-AP0105056C	D050(0.012M*1)	0.01200

TOTAL 2 PAGES

REMARK : U (*)-If cUstom parts F (*)-If saFety parts R (*)-cRitical C (*)-If Consign parts ITEM (-numeric)-If subcontract parts ITEM (-character)-If substitution parts

Note : This part list is prepared by Design department for cost estimation.

All of indirect material as solder, flux, glue, thinner, cleaner etc. are not listed on this part list.

Design : Benben 3/1/02

PUR : 3/1/02

LITE-ON ELECTRONICS, INC.
POWER CONVERSION

VENDOR LIST

Design Critical Parts List

MODEL : PA-1900-05D
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ITEM	PARTNO	OLDPARTNO	DESCRIPTION	LOCATION	MAKER1	MAKERPN1	MAKER2	MAKERPN2	MAKER3	MAKERPN3
1002	132638	34-FSTP40NF10L	MFET N 100V 40A0.028STP40NF10L	Q200,Q201	STM	STP40NF10L	----	----	----	----
1002A	132637	34-FIRFB59N10D	MFET N 100V 59A0.025IRFB59N10D		IR	IRFB59N10D	----	----	----	----
1002B	132639	34-FPHP45NQ10T	MFET N 100V 45A0.025PHP45NQ10T		PHLIP	PHP45NQ10T	----	----	----	----
1002C	132088	34-FIRFB471020	MFET N 100V 75A 0.014 IRFB4710		IR	IRFB4710	----	----	----	----
1002D	132254	34-FSTP80NF10	MFET N 100V 80A 0.015STP80NF10		STM	STP80NF10	----	----	----	----
1002E	132202	34-FPSMN01518	MFET N100V75A0.015PSMN015-100P		PHLIP	PSMN015-100P	----	----	----	----
*1004	123149	34-F2SK2842	MFET N 500V 12A 0.52 2SK2842	Q001	TOSHB	2SK2842	----	----	----	----
*1007	124445	32-SL6561D19	IC PWM 8P L6561D SMD STM	IC1	STM	L6561D	----	----	----	----
*1009	130127	32-SLTA201P	IC PWM 14P LTA201P SMD	IC100	PHLIP	LTA201P	----	----	----	----
*1010	125223	32-STSM103AID	IC OPA 8P TSM103AID SMD	IC302	STM	TSM103AID	----	----	----	----
1013	122444	34-F2SK2843	MFET N 600V 10A 0.54 2SK2843	Q050	TOSHB	2SK2843	----	----	----	----
1013A	132612	34-FSTP10NK619	MFET N 600V10A0.75STP10NK60ZFP		----	----	----	----	----	----
1017	124124	LTV-817MA	IC PHO 4P LTV-817M-PRA 100-160	PC300,PC301	LITON	LTV-817M-PRA	----	----	----	----
1017A	122708	32-PS2561L11VH	IC PHO 4P PS2561L1-1VH 80-160		NEC	PS2561L1-1-VH	----	----	----	----
1017B	126256	32-PC123Y62	IC PHO 4P PC123Y62 80-160		SHARP	PC123Y62	----	----	----	----
1029	126076	33-RMUR46012	DIO 600V 4A MUR460 GS	D003	GS	MUR460	----	----	----	----
1029A	122830	33-RMUR460	DIO 600V 4A MUR460		MOTOR	MUR460	----	----	----	----
3002	114652	31-F1222MD0581	C.DIS 2200PF 400V M E 10 CD	C006	TDK	CD12E2GA222MYGS	----	----	----	----
3002A	121145	31-F1222MB5542	C.DIS 2200PF 250V M E 10 KX		MURAT	DE1210E222M-KX	----	----	----	----
3002B	126254	31-F1222MD0592	C.DIS 2200PF 400V M E 10 NSA		MATSU	ECKANA222ME	----	----	----	----
3003	126283	31-FE334MB556	C.MEX 0.33UF 275V M 15 ECQUL	C001	MATSU	ECQU2A334ML	----	----	----	----
3003A	126058	31-FE334MB5542	C.MEX 0.33UF 275V M 15 R46		ARCO	R46KI333050M1M	----	----	----	----
3003B	130326	31-FE334MB557	C.MEX 0.33UF 275V M 15 3382		----	----	----	----	----	----
3003C	130324	31-FE334KB5502	C.MEX 0.33UF 275V K 15 KNB1560		ISKRA	KNB1560-0.33UF	----	----	----	----
3004	132221	31-F7121MD0523	C.ELE 120UF 400V M 18*31.5 KMG	C051	NCC	KMG400VB120M	----	----	----	----
3004A	132096	31-F7121MD064	C.ELE 120UF 400V M 18*31.5 PT		----	----	----	----	----	----
3004B	131088	31-F7121MD056	C.ELE 120UF 400V M 18*30 GH		MATSU	EEUGH2G121S	----	----	----	----
3004C	132288	31-F7121MD0586	C.ELE 120UF 400V M 18*30 KXW		QUMAO	31-F7121MD0586	TAI	31-F7121MD0586	ASJ	31-F7121MD0586
					ROYAL	31-F7121MD0586	YAGEO	31-F7121MD0586	----	----
4002	132640	37-C19000503	CHOKE TR12*6*4 SM100	L001	LITON	37-C19000503	TAIVO	37-C19000503	JETRO	37-C19000503
4003	133454	37-C19000505	CHOKE FR12*6*4 SM100-2	L002	LISGI	37-C19000503	XEPEX	37-C19000503	----	----
					LITON	37-C19000505	TAIVO	37-C19000505	JETRO	37-C19000505
4004	126323	37-C17000501	CHOKE T60-26 300UH +-13%	L003	LISGI	37-C19000505	XEPEX	37-C19000505	----	----
4006	132093	37-C19000501	CHOKE TR9*5*3 R7K 150T	L200	LITON	37-C17000501	JETRO	37-C17000501	TAIVO	37-C17000501
					LITON	37-C19000501	TAIVO	37-C19000501	JETRO	37-C19000501
					LISGI	37-C19000501	XEPEX	37-C19000501	----	----
4007	132094	37-C19000502	CHOKE A1900-05 RM10 NC2H	L010	LITON	37-C19000502	TAIVO	37-C19000502	JETRO	37-C19000502
					LISGI	37-C19000502	XEPEX	37-C19000502	----	----
4008	132092	42-M190005P01	XFMR A1900-05 C30/19-52 PC40	T050	LITON	42-M190005P01	JETRO	42-M190005P01	TAIVO	42-M190005P01

LITE-ON ELECTRONICS, INC.
POWER CONVERSION

VENDOR LIST

Design Critical Parts List

MODEL : PA-1900-05D
UPDATE : 2002/1/28
REV : 0G

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ITEM	PARTNO	OLDPARTNO	DESCRIPTION	LOCATION	MAKER1	MAKERPN1	MAKER2	MAKERPN2	MAKER3	MAKERPN3
					LISGI	42-M190005P01	XEPEX	42-M190005P01	----	----
*7001	132038	38-T32A0825	FUSE HSB 250V 3.15A TE5-T	F001	WKMAN	392-SERIES	----	----	----	----
9001	120289	07-O184503A	POLY TAPE 18*45M(2L) #40/#44	D050(0.012M*1)	3M	#44-2L	TUCK	#40-2L	----	----

TOTAL 2 PAGES

Note : This part is prepared by Design department for cost estimation.

All of indirect material as solder, flux, glue, thinner, cleaner etc. are not listed on this part list.

Design : Debean 2/18

PUR. : fly 2/18



ENGINEERING SPECIFICATION

90 WATT POWER SUPPLY

PART NUMBER PA-1900-05D

EFFECTIVE DATE : DEC 29, 2001

REV. NO.	ITEM	DESCRIPTIONS OF CHANGE		CHANGED DATE :	REF. DOC. NO.
		BEFORE	AFTER		
A			INITIAL	10/09/01	DN-
B	7.3	7.0A(MAX)	6.5A(MAX)	11/26/01	
C	7.3	6.5A(MAX)	6.0A(MAX)	12/29/01	

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1. SCOPE

This specification defines the performance characteristics of a grounded, single phase, 90 watt, 1 outputs power supply. This specification also defines worldwide safety and electromagnetic compatibility requirements for the power supply which is intended for use in note book products.

2. INPUT REQUIREMENTS

2.1.INPUT VOLTAGE

	MINIMUM		MAXIMUM		NOMINAL	
LOW RANGE	90	VAC	137	VAC	100-127	VAC
HIGH RANGE	180	VAC	265	VAC	200-240	VAC

2.2.FREQUENCY

	MINIMUM		MAXIMUM		NOMINAL	
SINGLE PHASE	47	Hz	63	Hz	50/60	Hz

2.3.VOLTAGE SELECTION

A full range will be provided to select the appropriate range.

2.4.NO LOAD Operation

The internal power loss at no load operation shall be less than 1.0W at any input voltage.

2.5.INPUT CURRENT

1.5 amps maximum at input voltage within the low range as specified in paragraph 2.1 and at any combination of loading conditions.

0.7 amps maximum at input voltage within the high range as specified in paragraph 2.1 and at any combination of loading conditions.

2.6.INRUSH CURRENT

The adapter inrush current shall be less than the ratings of its critical components for all conditions of line voltage.

2.7.POWER SUPPLY EFFICIENCY

The power supply efficiency shall not be less than 80% measure at the maximum load as specified in paragraph 3.1 with the AC input set at the nominal voltage.

3. OUTPUT REQUIREMENTS

3.1. STATIC DC LOAD (CV domain)

NOMINAL VOLTAGE (V)	LOAD CURRENT(A)		REGULATION
	MIN.	MAX.	
20	0	4.51	18.9V-20.6V

3.2. RIPPLE AND NOISE

The ripple and noise of the outputs shall be measured at the load end if the output cables when terminated to a load impedance as specified in paragraph 3.3.

OUTPUT VOLTAGE		RIPPLE & NOISE (P-P)	
20	V	500	mV

* Use 20MHz Bandwidth frequency scope.

3.3. LOAD IMPEDANCE

Filter capacitors are connected to each pins of the mating output connector. Capacitance values and material type are listed below.

VOLTAGE NOM.(V)	CAPACITANCE NOM. (uF)	MATERIAL TYPE
20	1nF	CERAMIC.

3.4. RISE TIME

The output rise time (measured from the 10% point to the 90% point on the waveform) shall be less than 30ms.

3.5. HOLD UP TIME

The power supply shall maintain voltage regulation within the specified limits in paragraph 3.1 for at least 10 milliseconds after lost of input voltage measure at 115 VAC and at maximum output load.

4. NO LOAD OPERATION

The power supply shall be able to operate under no load condition. No damage to the power supply is allowed and internal component can not be stressed beyond its rating.

5. FREQUENCY OF OPERATION

To keep audible noise to a minimum, power supply shall be switched at frequencies higher than 20 kHz.

6. TEMPERATURE COEFFICIENT

The temperature coefficient of all outputs are 0.05% per degree centigrade maximum.

7. PROTECTION

7.1.OVER VOLTAGE PROTECTION

The power supply should shutdown for any cause of over voltage conditions before any output exceeds its limits below.

NOMINAL OUTPUT VOLTAGE (V)	OVER VOLTAGE MAX.
20	24

The power supply is latched and power on reset is required.

7.2.SHORT CIRCUIT PROTECTION

A short circuit placed on DC output shall cause no damage to or shutting down the power supply. The power supply will be latch-off

7.3.OVER CURRENT PROTECTION

The power supply shall provide over current protection on output. Maximum current inception point of output shall be limited to the following values:

OUTPUT VOLTAGE (V)	CURRENT LIMIT (A)
20	6.0 Max

The power supply will be latch-off.

8. TURN ON TIME

The turn on time shall be less than 4 sec. for all line and load conditions. (measured from AC on point to the 90% point of the output voltage)

9. SAFETY REQUIREMENTS

The power supply must comply with the following national standards:

- United States Standard :
 - UL :UL 1950 2nd Edition.
- Canadian Standard :
 - CUL or CSA : CSA C22.2 No.950
- European Standard :
 - TUV : EN 60 950
- Japan Standard :
 - ELECTRICAL APPLIANCE AND MATERIAL CONTROL LAW OF

JAPAN

- Australia Standard :
 - AS 3260
- North European Standards :
 - KEN-EN 60 950(1992)/A1/A2/A3
 - EMKO-TSE(74-SEC)207/94

9.1. DIELECTRIC STRENGTH

Primary to Secondary : 2150 VDC for 1 sec.

9.2. INSULATION RESISTANCE

Primary to secondary : 30 Meg. ohms Min., 500VDC

9.3. GROUND LEAKAGE CURRENT

The power supply ground leakage current shall be less than 0.25 mA.

10. ELECTROMAGNETIC COMPATIBILITY

Power supply for use with the host system will be tested to conform with the following emission standards.

10.1. FCC REQUIREMENTS

Power supply shall comply with the United States Communication Commission (FCC) Rules and Regulations, Part 15, Subpart J, Computing Devices "Class B limits".

10.2. VDE REQUIREMENTS

Power supply shall conform to the "Class B" requirements of CISPR 22.

10.3. VCCI REQUIREMENTS

Power supply shall conform to the "Class II" requirements of VCCI.

10.4. CE MARK

LVD : EN 60 950 : 1992/A1:1993/A2:1993/A3:1995

EMC: EN 50 082-1 : 1992

: EN 50 081-1 : 1992

: IEC 801-2 : 1994

: EN 55 022 : 1994

: IEC 801-3 : 1984

: EN 60 555-2&3: 1981

: IEC 801-4 : 1988

: EN 61000(IEC801)

10.5. LIGHTNING SURGE

A 1K volt (applied differential mode), and a 2K volt (applied common mode) by IEC 801-5:1992 Draft 7/92.

10.6. ESD

The power supply shall meet Contact discharge 8KV and Air discharge 15KV requirement, when power supply is operating at maximum load condition.

11. ENVIRONMENT

11.1. OPERATING

Temperature : 0 to 40 degrees centigrade.

Relative Humidity : 8 to 80 percent, non-condensing.

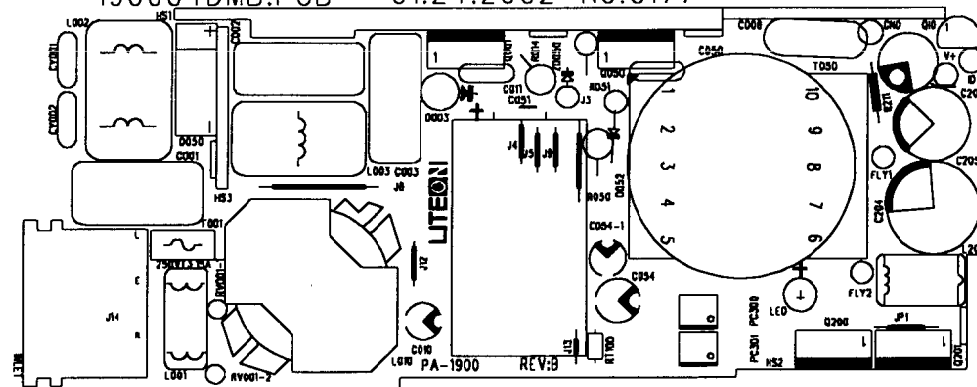
11.2. SHIPPING AND STORAGE

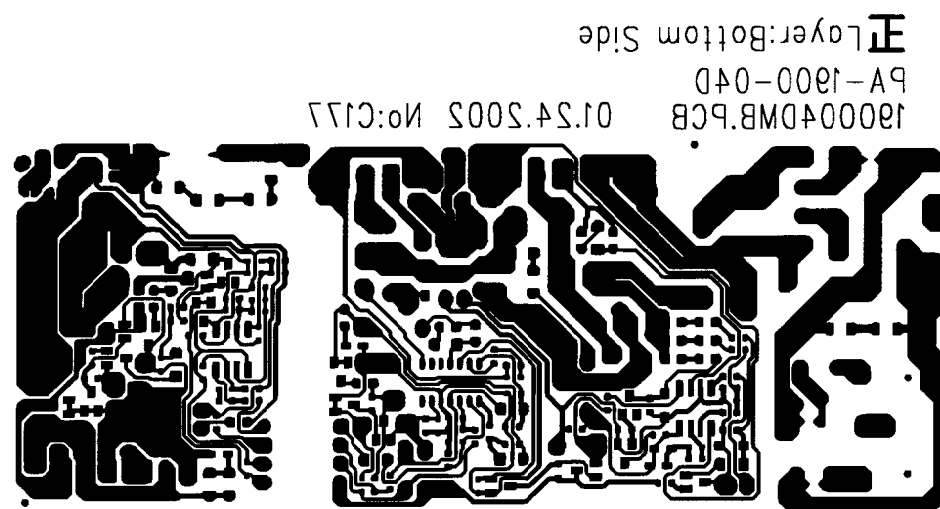
Temperature : -31 to +60 degrees centigrade.

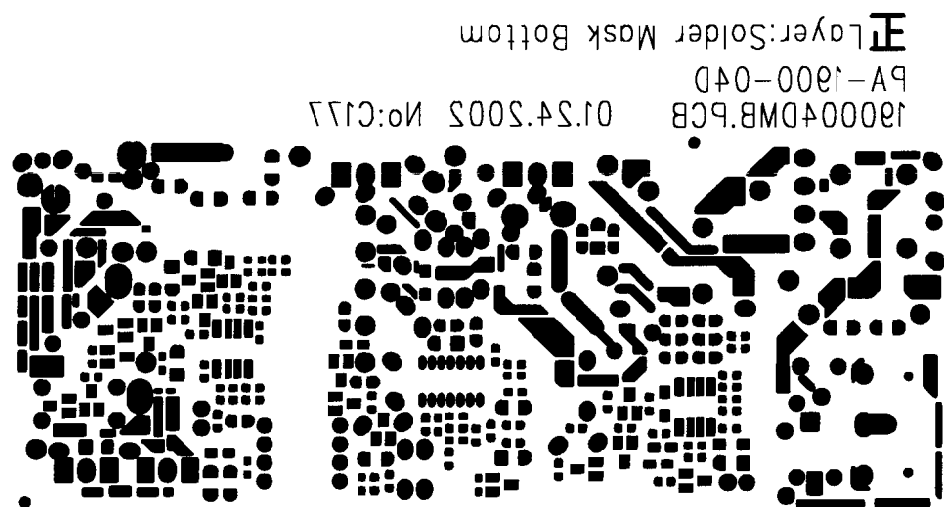
Relative Humidity : 8 to 80 percent, non-condensing.

PA-1900-04D

190004DMB.PCB 01.24.2002 No:C177



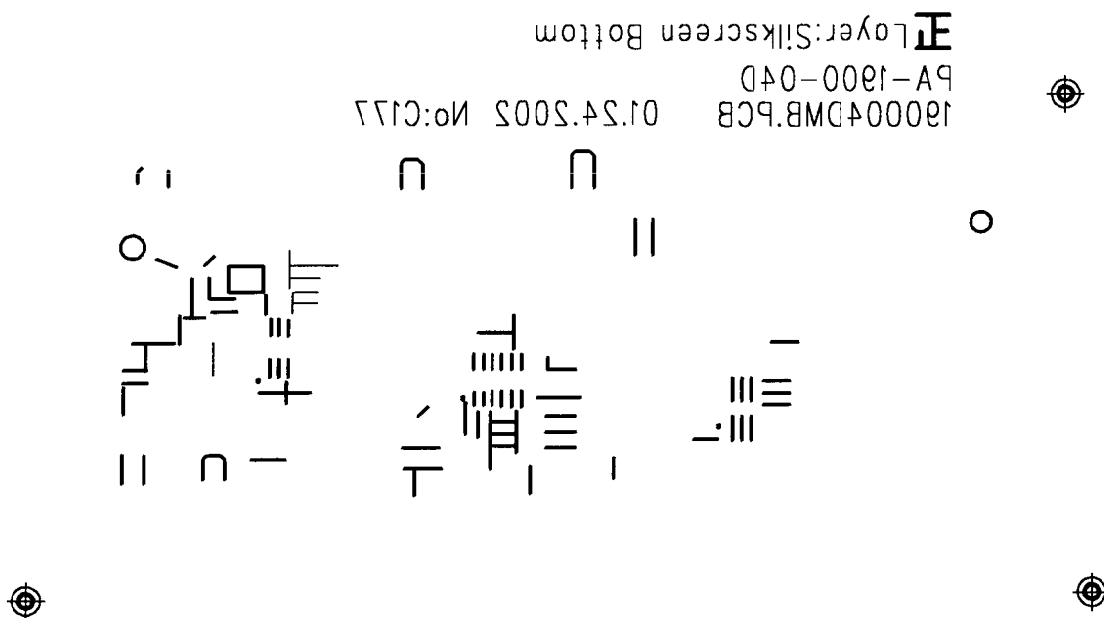




Layer: Solder Mask Bottom

180004DMB.PCB 01.54.5005 No: C117
PA-1800-04D





正 Layer:Drill Drawing

PA-1900-04D

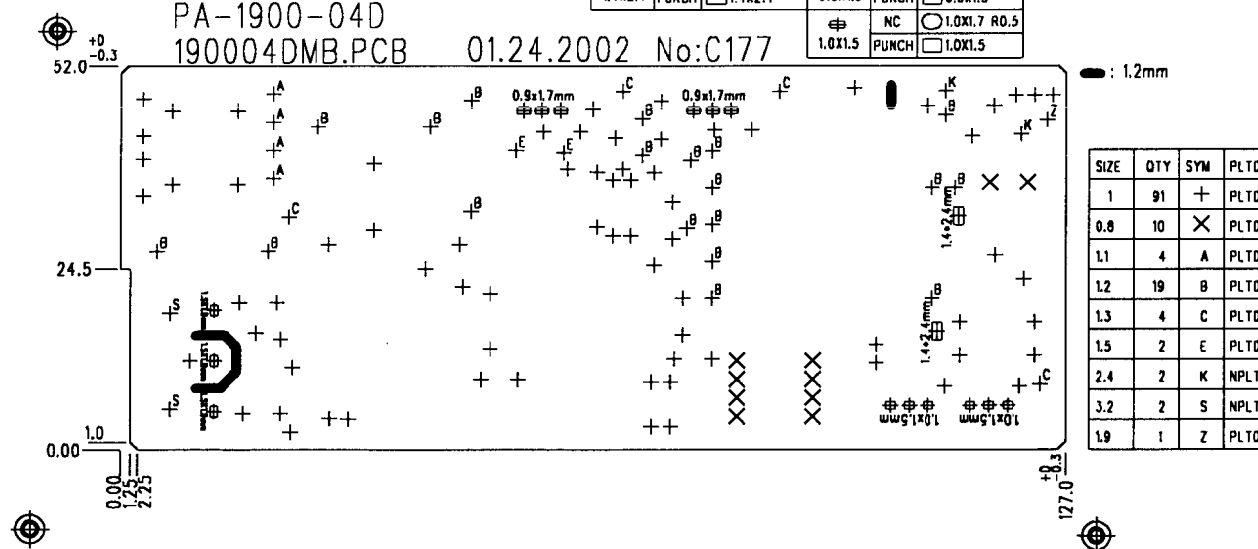
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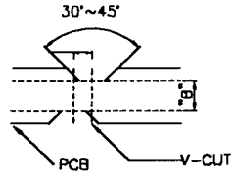
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TOLERANCE: +0.1 -0.0		☐ NC ☐ 0.9X1.9 0.9X1.7 PUNCH ☐ 0.9X1.7
☐ NC ☐ 1.4X2.6 1.4X2.4 PUNCH ☐ 1.4X2.4	☐ NC ☐ 0.8X1.7 RO 0.8X1.5 PUNCH ☐ 0.8X1.5 ☐ NC ☐ 1.0X1.7 RO 1.0X1.5 PUNCH ☐ 1.0X1.5	

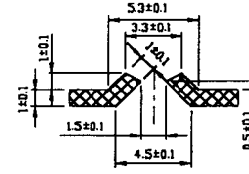
● : 1.2mm



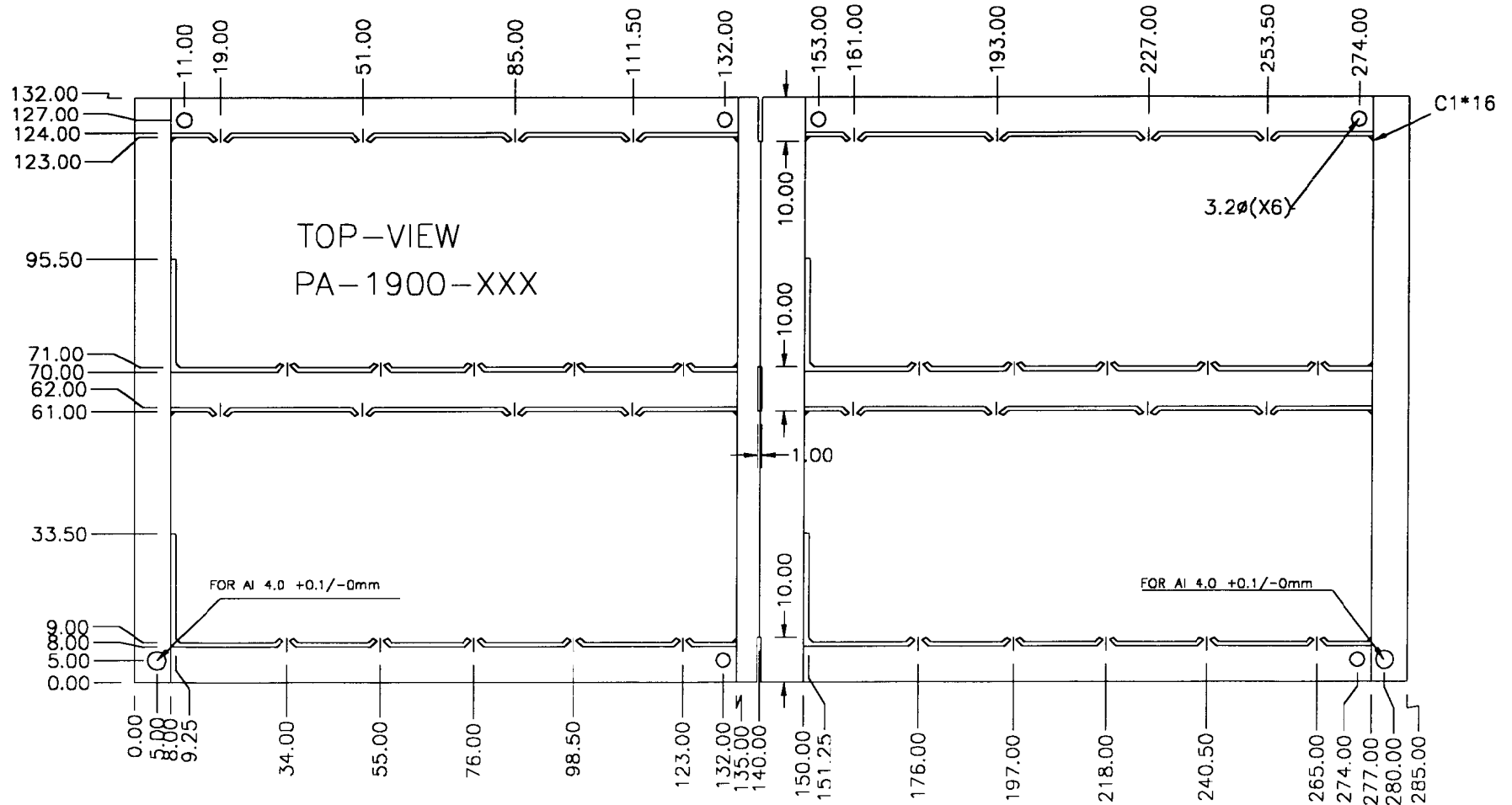
SIZE	QTY	SYM	PLT
1	91	+	PLT
0.8	10	X	PLT
1.1	4	A	PLT
1.2	19	B	PLT
1.3	4	C	PLT
1.5	2	E	PLT
2.4	2	K	NPLT
3.2	2	S	NPLT
1.9	1	Z	PLT



MATERIAL: CEM-1
 THICKNESS: 1.2mm±0.1mm
 V-CUT(DEPTH="B"):0.6mm±0.1
 PCB SIZE: 285 X 132
 TOLERANCE: ±0.2



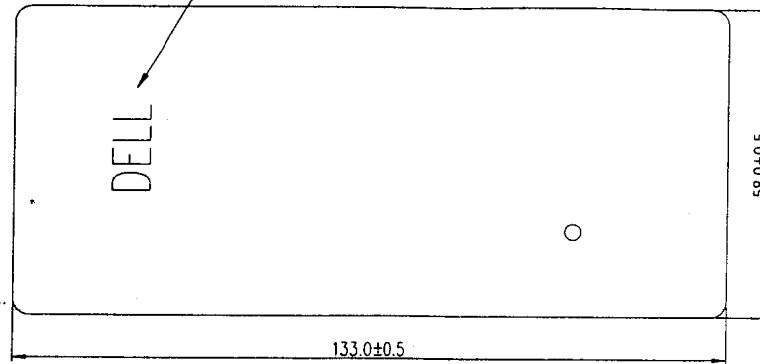
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 DATE:2002/01/16
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 REV.: 0C



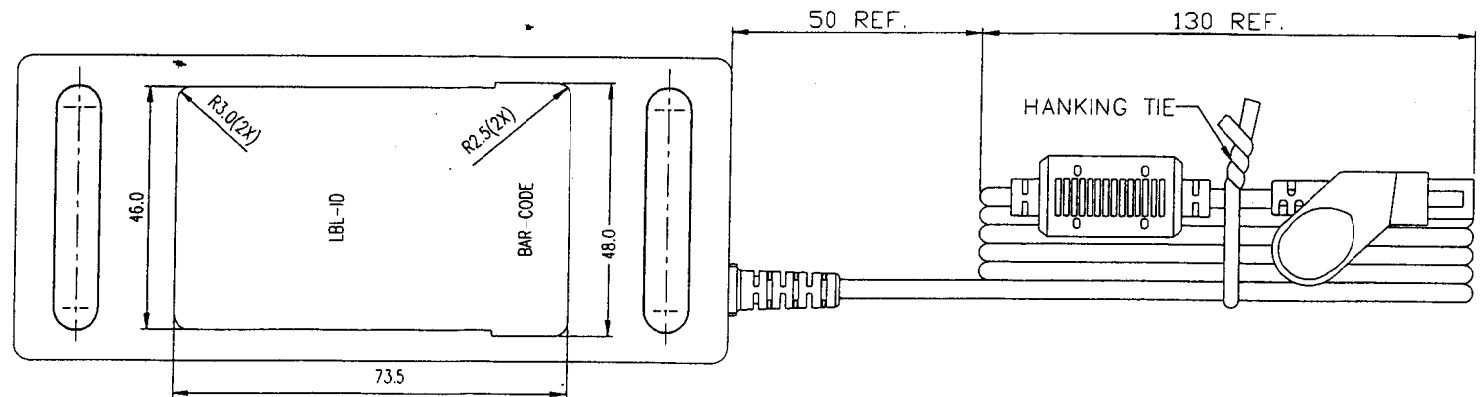
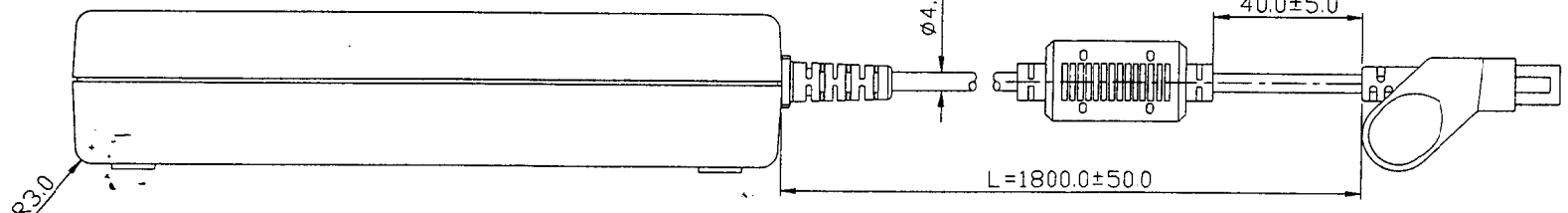
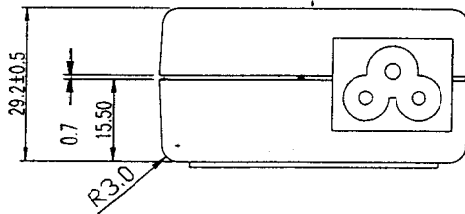
NOTES: UNLESS OTHERWISE SPECIFIED.

1. ALL DIMENSIONS ARE IN mm.
TOLERANCES TO BE ± 0.25 mm.
2. PARTS SPECIFIED AS FOLLOWS:
 - 2-1. ENCLOSURE:
 - * MATERIAL:
UL RECOGNIZED PLASTIC (QMFZ2),
MAKROLON 6485 2D09 (BAYER).
 - * COLOR: DELL MIDNIGHT GRAY #89121.
 - * TEXTURE: MT-11030 (MAT).
 - 2-2. AC RECEPTACLE:
 - * IEC 320, C6 CERTIFIED, 3 WAY.
 - * COLOR: BLACK PER MAKER.
 - 2-3. DC OUTPUT (FERRITE CORE):
 - * CONNECTOR: HIROSE #RP34-8SP-3SCA.
 - * TERMINAL: HIROSE #RP34-SC-212.
 - * DIELECTRIC: BLACK
 - * CORE: RH14.2*28.5*6.35.
 - * CABLE: UL AWM 1571, VW-1 80°C 30V
WIRE #17 & SPIRAL #17(GENUINE)
 - * PVC HARDNESS: SHORE A75-85.
 - * COLOR: DELL MIDNIGHT GRAY #89121.

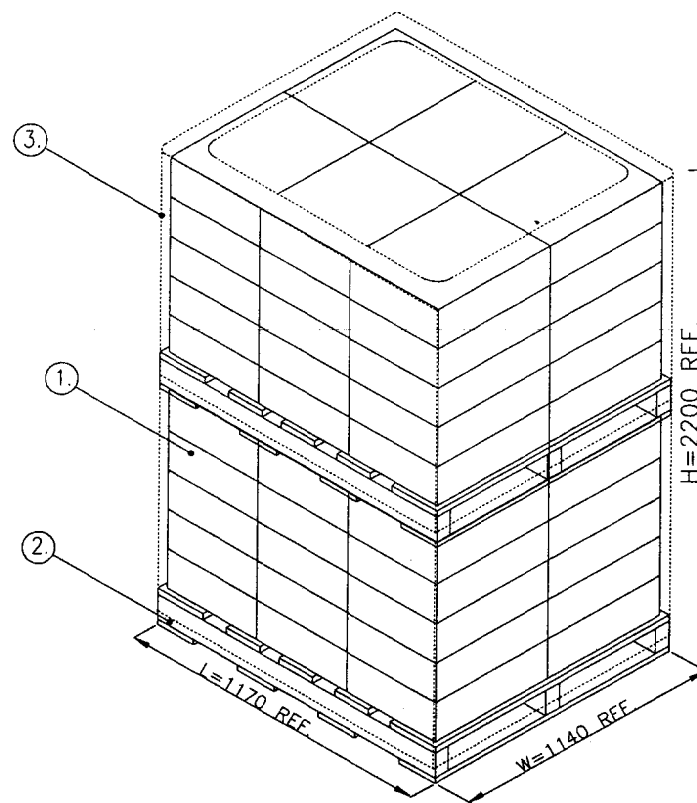
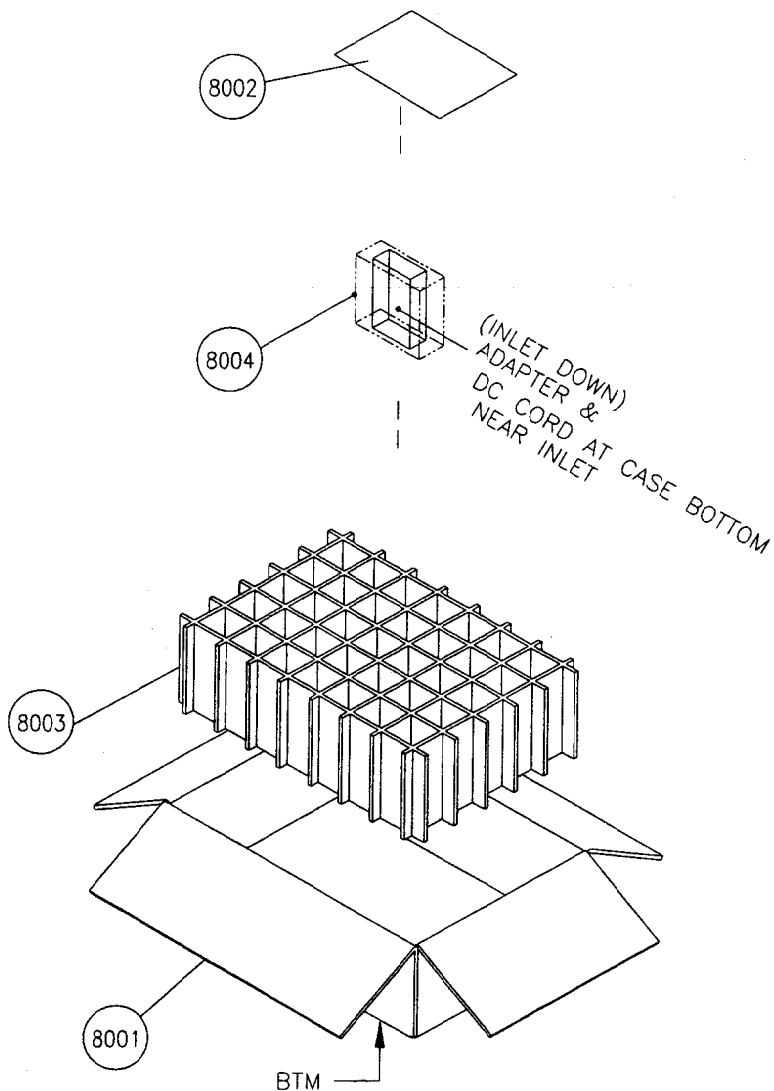
LOGO PER ARTWORK



- * PIN ASSIGN OF OUTPUT:
- PIN 1: GND (-)
 - PIN 2: ID(-)
 - PIN 3: WHITE (+)



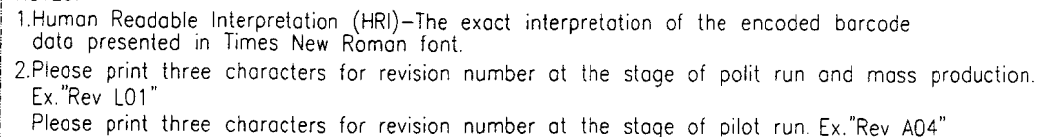
REVISION	RELEASED	2002-01-21	PRINTING DATE	2D FILE	OUTLINE_PA-1900-05D	DESIGNER	Julian Liu	LITEON	TITLE: OUTLINE DRAW.	PART NO:
	DESCRIPTION	DATE	ZONE	3D FILE		CHECKER		LITE-ON ELECTRONICS, INC.	PROJECT: PA-1900-05D	DRAWING NO: 30A00474
						APPROVED				REV.: A



* PALLET ASS'Y DRAWING:

1. ALL DIMENSIONS ARE IN mm.
2. PARTS SPECIFIED AS FOLLOWS:

ITEM	PART NAME	QUANTITY
①	CARTON	1 CARTON=35 UNITS
②	PALLET	1 PALLET=5 LAYERS =30 CARTONS =1050 UNITS
③	POLYESTER FILM	2 LAYERS MIN. =1050 UNITS
	FULL CONTAINER	40 FEET= 42000 UNITS
		20 FEET= 21000 UNITS



LOCATION	SUPPLIER ID
Penang (MALAYSIA)	12771
Hong Kong (WELLEX)	12772
China (LITE)	48010
Fortron	12774
Watt	12775
Taiwan	12776

NOTES:
UNLESS OTHERWISE SPECIFIED.

1. TOLERANCES TO BE ± 10.0 mm.
2. MATERIAL: COPY PAPER,
WHITE, 0.1 mm THK.
3. COLOR: ALL CHARACTERS ARE
BLACK.
4. THE PRINT SHOULD BE KEPT
CLEAR-CUT.

INSTALLATION INSTRUCTION MANUAL FOR GENERAL-USE ADAPTER MODEL: PA-1900-05D

CAUTION: This product is for indoor use only.

Please read this safety information carefully and keep this User's Manual for later reference.
Please disconnect this equipment from AC inlet before cleaning. Don't use liquid or sprayed detergent for cleaning. Drop or fall could cause injury.

For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.

Make sure the voltage of the power source when connect the equipment to a reliable surface when install people cannot step on it. Do not place anything over the power cord. Never pour any liquid, this could fire or electrical shock.

If one of the following situations arises, get the equipment checked by service personnel:

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment has not work well or you cannot get it work according to user's manual.
- The equipment has dropped and damaged.

DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED. STORAGE TEMPERATURE ABOVE 40 °C, IT MAY DAMAGE THE EQUIPMENT.

A este equipo se deberá colocar y/o proveer de un cable de alimentación junto un enchufe con marca de conformidad emitido por un Organismo Argentino de Certificación

When using product at 120 V: Use a UL Listed/CSA Certified cord set consisting of a minimum 18 AWG (1.219 mm²), type SVT or SJT or SPT-2 two conductor cord a maximum of 15-feet in length and having a parallel blade polarized attachment plug cap, rated 6 A, 125 V. When using product at 240 V (domestic use): Use a UL Listed/CSA Certified cord set consisting of a minimum 18 AWG (1.219 mm²), type SVT or SJT two conductor cord a maximum of 15-feet in length and a tandem blade, rated 6 A, 250 V.

When using product outside of North America: Use a cord set consisting of a minimum 18 AWG (1.219 mm²) cord, rated 6A, 250V and a moulded or rewirable 3-pin mains plug compatible with the destination country. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed and marked HAR.

When using product at 230 V (in Singapore use): Use a rewirable 3-pin mains plug approved by Public Utilities Board (PUB) or a moulded 3-pin mains plug tested by PSB to show that it has complied with SS145, a double insulated flexible cord certified to relevant IEC standard and an appliance connector certified to IEC 60320.

Bedenungsanleitung
für das Schaltteil PA-1900-05D
Eingang: 100-240 V~ 1.5 A, 50-60 Hz
Ausgang: 20V, 4.51 A (max.)
Max. zulässige Umgebungstemperatur 40 °C

Achtung:

Das Schaltteil nur innerhalb von Gebäuden benutzen.

Dieses Schaltteil nur für Anwendungen nach EN 60 950 verwenden.

Bei sämtlichen Arbeiten am Schaltteil das Gerät vom Versorgungsstromkreis trennen.
Schmelzsicherungen nur gegen gleichen Typ und gleiche Nennwerte austauschen.

一般型电源供应器之使用手册 机种: PA-1900-05D

1. 请仔细阅读这个安全说明书且保留这个使用手册作为以后参考用。
2. 在清理本产品时请先将交流插座拔除。不能使用液态或喷雾式的清洁剂来清理。会滴落下或掉下将会伤害到这个仪器。
3. 必须确定放置电源线的地方人不会踩在上面。不能放置任何东西在电源线上。千万不可倒人任何的液体, 这将引起火灾或触电。
4. 如果有以下的情况发生, 请将这仪器交给服务人员检查
 - 电源线造成短路损害
 - 有液体渗透到本产品
 - 仪器暴露在潮湿的地方
 - 这个仪器不再动作或你根据使用手册也无法使它动作时
 - 仪器被摔下来且损害时。
5. 这是一种安装固定式的零件。在安装在仪器时相关的零件如: 必须符合 EN 60 950。单独的安装在必须参考厂商的使用手册。
6. 这个电源供应器必须在常温低于 40 °C 以下来操作。超过温度将使仪器受损。
7. 可允许的漏电流为 0.25 mA。且适用于可换模式的装置。
8. 每一组直流负载和总直流输出电源都不能超过以下的值:
 - 最大输出值: 20V, 4.51 A (max.)
9. 这个电源供应器并不附上交流电源线。必须使用已承认过的电源线来搭配它。电源线的电流值需大 15 A, 且最少要求 H03VV-F, 3G, 0.75 mm² (型号: SVT, AWG20, 对 CSAUL 最小温度值 60 °C/75 °C)。

297.0

210.0

REVISION	RELEASED	0118'02	PRINTING DATE	0118'02	2D FILE	MANUAL PA-1900-05D	DESIGNER	JULIAN	LITEON	TITLE: MANUAL	PART NO. (133297) 53-M190005MN
	DESCRIPTION	DATE	UNIT: m	SCALE:	3D FILE		CHECKER	APPROVED	LINE-ON ELECTRONICS, INC.	PROJECT: PA-1900-05D	DRAWING NO: 353-133297

CL CODE	PART NO.	REV.
37	(133454) 37-C19000505	A

SPECIFICATION CONTROL DRAWING

UNLESS OTHERWISE SPECIFIED : DIMENSIONS ARE IN mm. Tolerance : Angles: $\pm 0.5^\circ$ Decimals: $.X \pm 0.3$ $.xx \pm 0.10$	APPROVED		DATE	LITEON POWER CONVERSION TITLE: COMMON MODE E.M.I CHOKE TR12 (O.D.)*6(I.D.)*4(H) SM100	
	DRAFT BY	張穎 / 林志榮	02/01'02		
	SAFETY ENGR	<i>[Signature]</i>	<i>[Signature]</i>		
	DE / ME ENGR	<i>[Signature]</i>	<i>[Signature]</i>		
DO NOT SCALE DRAWING	APPROVED BY	<i>[Signature]</i>	2/6'02	SCALE: NONE	SHEET 1 OF 7

RECORD OF REVISION					
DOC NO.	REV.	PAGES AFFECTED	DESCRIPTION	DATE	ENGINEER
			ITEMS BE CHANGED OVER , (FROM / TO)		
	A		INITIAL	02/01'02	張 穎

NOTE: SPEC REV. EXPRESSION RULES:

- BEFORE THE YELLOW BOOK RELEASE: X1, X2, X3...
- AFTER THE YELLOW BOOK RELEASE : A,B,C...

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.(133454)37-C19000505	A	2

1. SCOPE

This specification defines the requirements for a COMMON MODE E.M.I. CHOKE to be installed into a Switching Mode Power Supply operating above the audible range.

2. PHYSICAL REQUIREMENTS(實物特徵，含外觀尺寸、元件標示、機械特性等)

2.1 OUTLINE DIMENSION

The finished device shall have the physical dimensions as shown in Figure -1 (unit: mm).

2.2 MARKING

VENDOR COLOR CODE.

3. ELECTRICAL REQUIREMENTS(電性需求，應註明試驗條件)

Unless otherwise specified, measurements at +25°C.

3.1 SCHEMATIC

The choke shall meet the schematic representation of Figure -2.

3.2 INDUCTANCE (WINDING #1 2.16mH +/- 30%) at 10KHZ / 0.1 Vrms

3.3 INDUCTANCE (WINDING #2): READ OF WINDING #1, +/-3% at 10KHZ / 0.1 Vrms

3.4 DC RESISTANCE (D.C.R.) FOR (WINDING #1): 37.0mOHM(MAX)

3.5 DC RESISTANCE (D.C.R.) FOR (WINDING #2): 37.0mOHM(MAX)

NOTE:

Inductance measurements are made with a $\pm 1\%$ or better accuracy equipment, HP4284A or equivalent.
DCR measurements are made with a CHEN HWA 502A

4. MATERIALS & CONSTRUCTION(材質及結構)

MATERIALS:

All materials shall be UL "recognized" for minimum flammability rating of 94V-2 and operating temperature of 120°C unless otherwise specified. All materials submitted for testing by a vendor and approved by LITEON engineering may be used!

All retardant flame products can not contain any of the PBDEs (PolyBrominated Diphenyl ethers) and PBBs (PolyBrominated Bisphenyls).

Note: PBDEs (PBBO, PBDO, PBDPO, PBDPE)

4.1 MAGNET WIRE

The wire shall be UL " recognized component magnet wire " (OBMW2), and shall conform to the requirements set forth in NEMA MW5C heavy or single, Type F (155°C) heavy or single build, Polyester enamelled.

PACIFIC ELECTRIC WIRE & CABLE: SS-F(PEW) UL FILE NO.: E84081(S) or various manufacturer's

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(133454)37-C19000505	A	3

4.2 TRIPLE INSULATION WINDING WIRE

The triple insulated winding wires suitable for use as a part of class 105, double insulated transformer wound, non moving components.

The wire shall be UL " recognized component magnet wire " (OCDT2), and shall conform to the requirements set forth in triple insulation winding wire.

FURUKAWA ELECTRIC CO., LTD.: TEX-E 105°C UL FILE NO.: E157568 meet these requirements.

4.3 CORE

A toroid ferrite shall be used for the inductor core. The core shall meet the following electrical parameters in the TR12(O.D)*6(I.D.)*4(H) mechanical package.

The following core shall meet the above requirements, but may only be used if approved.

SAMHWA	SM100	AL=5500 +/-25% nH/N*N	P/N: SM100OR12*6-4H
ACME	A10	AL=5400 +/-30% nH/N*N	P/N: A10TR12*6*4

4.4 CORE COATING

THE CORE SHALL BE UNIFORMLY COATED WITH A DIELECTRIC FINISH. THE FINISH SHALL HAVE A MINIMUM SPECIFIED BREAKDOWN OF 2000 VAC.

THE FINISH IS EXEMPT FROM UL RECOGNITION AND FLAMMABILITY REQUIREMENTS

4.5 EPOXY

CONAP INC. AD-3 or equivalent.

CONSTRUCTION:

Figure 2 for Electrical Schematic.

這兩組線是並繞.

4.6 WINDING (N1)

This winding shall be wound with 20 turns of 0.60Ø(包括外皮) *1 triple insulation tape wire.

4.7 WINDING (N2)

This winding shall be wound with 20 turns of 0.60Ø(包括外皮) *1 magnet wire.

5. ENVIRONMENTAL REQUIREMENTS(環境要求，含試驗名稱、條件及步驟)

Unless otherwise specified, when subjected to the following conditions, devices within this specification shall have no change in appearance, physical dimensions, or functionality.

5.1 OPERATING TEMPERATURE

Operating temperature range shall be 0°C to +120°C

5.2 NON-OPERATING TEMPERATURE STORAGE

-30°C to +50°C temperature

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(133454)37-C19000505	A	4

5.3 SOLDERABILITY

This device shall be solderable to MIL-STD-202 METHOD 208. Finish shall be bright and free of contaminants.

6. SAFETY REQUIREMENTS(安規要求)

6.1 HI-POT REQUIREMENT: ALL PARTS SHALL BE 100% HI-POT TESTED at +25℃ +/-5℃.
THERE SHALL BE NO FAILURE.

COIL - COIL 1800VAC/1mA/3sec

7. PREPARATION FOR DELIVERY(包裝方式及運送規定)

7.1 PACKAGING

Shall be BULK with sufficient packing and wrapping to protect against damage or loss during shipment from the Supplier to destination specified in the purchase order.

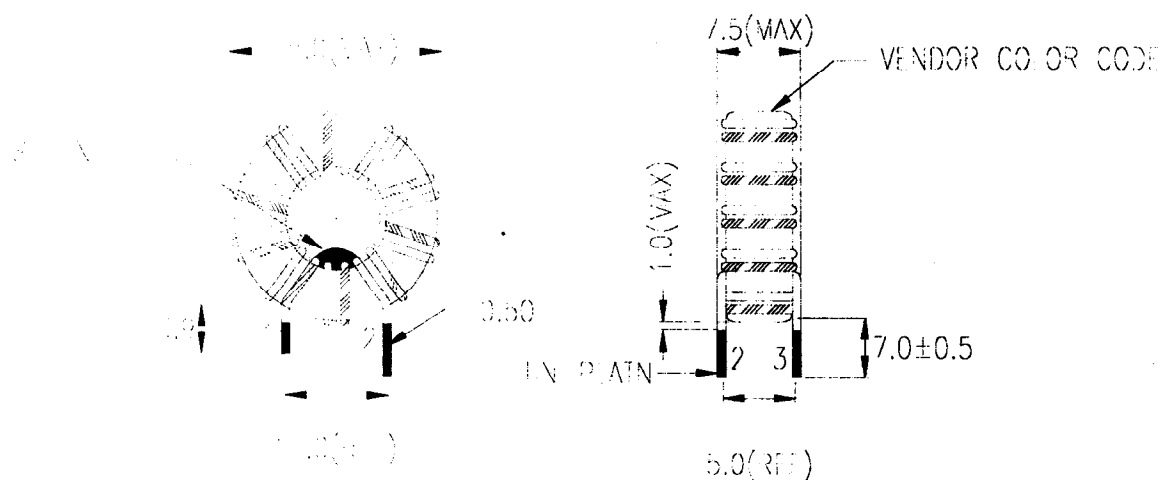
7.2 SHIPPING CONTAINER

Each shipping container shall include, but not be limited to, the following requirements on the packing case and/or packing container.

LITE-ON PART NUMBER
PURCHASE ORDER NUMBER
QUANTITY

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(133454)37-C19000505	A	5

FIGURE-1
OUTLINE DIMENSION (UNIT: mm)

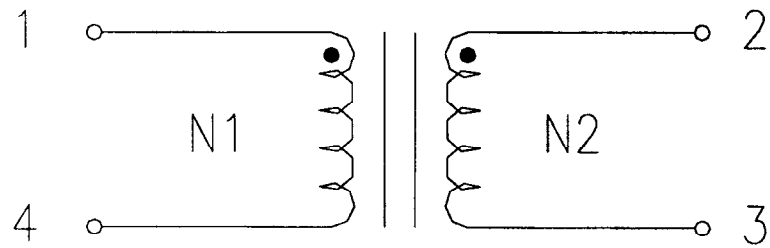


NOTE:

1. THE EXOPY SHALL BE PLACED ON THE TOROID INSIDE.
2. PIN 2,3 出腳長為 7.0+/-0.5 , 其它PIN 腳長均為 3.9+/-0.3, (PIN 出腳長以實套PCB 為準)

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.: (133454)37-C19000505	A	6

FIGURE-2
ELECTRICAL SCHEMATIC



LITEON	POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	SPECIFICATION CONTROL DRAWING	A4	PART NO.:(133454)37-C19000505	A	7

CL CODE	PART NO.	REV.
37	(132641) 37-C19000504	A

SPECIFICATION CONTROL DRAWING

UNLESS OTHERWISE SPECIFIED . DIMENSIONS ARE IN MM. Tolerance : ANGLES: $\pm 0.5^\circ$ DECIMALS: .X ± 0.3 .xx ± 0.10	APPROVED		DATE	LITEON POWER CONVERSION	
	DRAFT BY	張穎 / 趙忠祥	01/22'02	TITLE: COMMON MODE E.M.I CHOKE FR16 (O.D.)*12(I.D.)8(H) SM100	
	SAFETY ENGR	<i>[Signature]</i>	<i>1/21'02</i>		
	DE / ME ENGR	<i>[Signature]</i>	<i>1/23'02</i>		
DO NOT SCALE DRAWING	APPROVED BY	<i>[Signature]</i>	<i>1/23'02</i>	SCALE: NONE	SHEET 1 OF 7

RECORD OF REVISION

[illegible]

NOTE: SPEC REV. EXPRESSION RULES:

1. BEFORE THE YELLOW BOOK RELEASE: X1, X2, X3...
2. AFTER THE YELLOW BOOK RELEASE : A,B,C...

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.(132641)37-C19000504	A	2

1. SCOPE

This specification defines the requirements for a COMMON MODE E.M.I. CHOKE to be installed into a Switching Mode Power Supply operating above the audible range.

2. PHYSICAL REQUIREMENTS(實物特徵，含外觀尺寸、元件標示、機械特性等)

2.1 OUTLINE DIMENSION

The finished device shall have the physical dimensions as shown in Figure -1 (unit: mm).

2.2 MARKING

Units and or packages shall be identified with a suitable silk-screen, stamp, or printed label with, but not limited to, the following:

LITEON PART NUMBER (37-C19000504)
HPOK MARKING AND CURRENT REVISION LETTER (REV.A)
DATE CODE OR LOT CODE & SITE CODE
MANUFACTURER'S NAME OR LOGO AND MANUFACTURE LOCATION

3. ELECTRICAL REQUIREMENTS(電性需求，應註明試驗條件)

Unless otherwise specified, measurements at +25°C.

3.1 SCHEMATIC

The choke shall meet the schematic representation of Figure -2.

3.2 INDUCTANCE (WINDING #1 16.20 mH +/-25%) at 10KHZ / 0.1 Vrms

3.3 INDUCTANCE (WINDING #2): READ OF WINDING #1, +/-3% at 10KHZ / 0.1 Vrms

3.4 LEAKAGE INDUCTANCE (1 - 4): 90.0 uH (MIN) SHORT 2,3 at 10KHZ / 0.1 Vrms

3.5 DC RESISTANCE (D.C.R.) FOR (WINDING #1): 155.89mOHM(MAX)

3.6 DC RESISTANCE (D.C.R.) FOR (WINDING #2): 155.89mOHM (MAX)

NOTE:

Inductance measurements are made with a $\pm 1\%$ or better accuracy, HP4284A or equivalent.
DCR measurements are made with a CHEN HWA 502A

4. MATERIALS & CONSTRUCTION(材質及結構)

MATERIALS:

All materials shall be UL "Recognized" for a minimum flammability rating of 94V-2 and operating temperature of 150°C unless otherwise specified.

4.1 MAGNET WIRE

The wire shall be UL " recognized component magnet wire " (OBMW2), and shall conform to the requirements set forth in NEMA MW5C heavy or single, Type F (155 °C) heavy or single build, Polyester enamelled.

LITEON

POWER CONVERSION

SIZE

MODEL NAME: PA-1900-05D

REV

SHEET

SPECIFICATION CONTROL DRAWING

A4

PART NO.:(132641) 37-C19000504

A

3

PACIFIC ELECTRIC WIRE & CABLE: SS-F(PEW) UL FILE NO.: E84081(S) or various manufacturer's

4.2 CORE

A toroid ferrite shall be used for the inductor core. The core shall meet the following electrical parameters in the FR16(O.D.)*12(I.D.)*8(H) mechanical package.

The following core meet the above requirements, but may only be used if approved.

SAMHWA SM100 AL=4500 +/-25% nH/N*N P/N: SM100OR16*8-12H

4.3 SHIELDING SHEET

The shielding sheet shall be UL "Recognized" (QMTS2), with a minimum system rating of 130 °C 94V-0.

SPAULDING COMPOSITES CO INC. Part Number G-10-900 ANSI TYPE:FR-4 UL FILE NO.: E6147 or various manufacturer's.

4.4 EPOXY

CONAP INC. AD-3 or equivalent.

CONSTRUCTION:

See Table-1 for winding information table and Figure 2 for Electrical Schematic.

4.5 CORE COATING

THE CORE SHALL BE UNIFORMLY COATED WITH A DIELECTRIC FINISH. THE FINISH SHALL HAVE A MINIMUM SPECIFIED BREAKDOWN OF 2000 VAC.

THE FINISH IS EXEMPT FROM UL RECOGNITION AND FLAMMABILITY REQUIREMENTS

4.6 WINDING (#1)

This winding shall consist of 60 turns of 0.5Ø *1 magnet wire bank wound in sector #1 and #2. Sector #1 shall start at 9 o'clock. Wind 11 turns from 9 to 6 o'clock; then 10 turns from 6 to 9 o'clock. Then finish sector #1 with 9 turns wound from 9 to 7 o'clock. Sector #2 shall start at 9 o'clock. Wind 11 turns from 9 to 12 o'clock; then 10 turns from 12 to 9 o'clock. Then finish sector #2 with 9 turns wound from 9 to 11 o'clock. This finish lead must pass through the toroid I.D.

4.7 WINDING (#2)

This winding shall consist of the same turns as winding #1 of 0.5Ø *1 magnet wire bank wound in sector #4 and #3. Sector #4 shall start at 3 o'clock. Wind 11 turns from 3 to 6 o'clock; then 10 turns from 6 to 3 o'clock. Then finish sector #4 with 9 turns wound from 3 to 5 o'clock. Sector #3 shall at 3 o'clock. Wind 11 turns from 3 to 12 o'clock; then 10 turns from 12 to 3 o'clock. Then finish sector #3 with 9 turns wound from 3 to 1 o'clock. This finish lead must pass through the toroid I.D.

5. ENVIRONMENTAL REQUIREMENTS(環境要求，含試驗名稱、條件及步驟)

Unless otherwise specified, when subjected to the following conditions, devices within this specification shall have no change in appearance, physical dimensions, or functionality.

5.1 OPERATING TEMPERATURE

Operating temperature range shall be 0°C to +90°C

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132641) 37-C19000504	A	4

5.2 NON-OPERATING TEMPERATURE STORAGE

-30°C to +50°C temperature

5.3 SOLDERABILITY

This device shall be solderable to MIL-STD-202 METHOD 208. Finish shall be bright and free of contaminants.

6. SAFETY REQUIREMENTS(安規要求)

6.1 LINE TO NETURAL SPACER 2 mm.

6.2 HO-POT REQUIREMENT: ALL PARTS SHALL BE 100% HI-POT TESTED at +25°C +/-5 °C. THERE SHALL BE NO FAILURE.

COIL - COIL 1800VAC/1MA/3SEC

7. PREPARATION FOR DELIVERY(包裝方式及運送規定)

7.1 PACKAGING

Shall be BULK with sufficient packing and wrapping to protect against damage or loss during shipment from the Supplier to destination specified in the purchase order.

7.2 SHIPPING CONTAINER

Each shipping container shall include, but not be limited to, the following requirements on the packing case and/or packing container.

LITE-ON PART NUMBER
PURCHASE ORDER NUMBER
QUANTITY

LITEON POWER CONVERSION

SPECIFICATION CONTROL DRAWING

SIZE

A4

MODEL NAME: PA-1900-05D

PART NO.:(132641) 37-C19000504

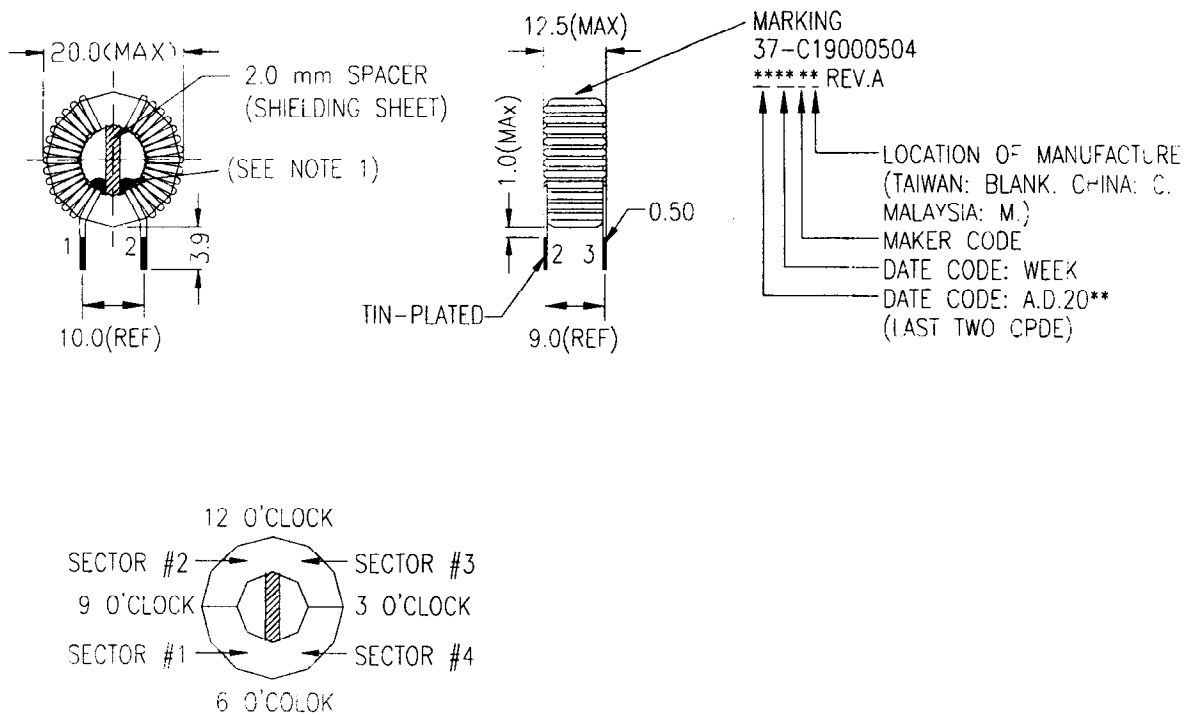
REV

A

SHEET

5

FIGURE-1
OUTLINE DIMENSION (UNIT: mm)

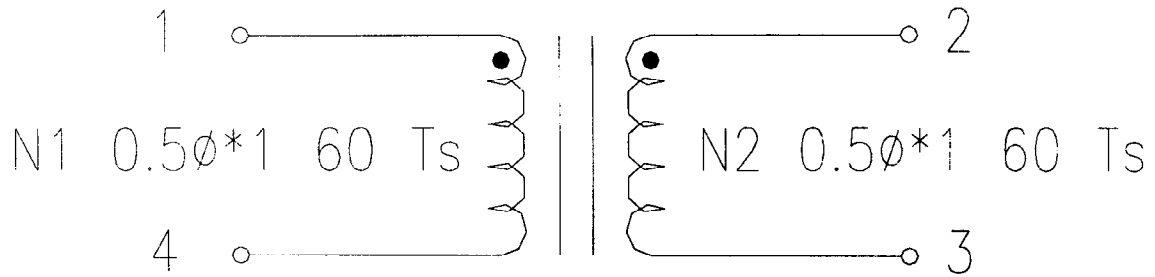


NOTE:

1. THE EXPOY SHALL BE PLACED ON THE TOROID INSIDE.

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132641) 37-C19000504	A	6

FIGURE-2
ELECTRICAL SCHEMATIC

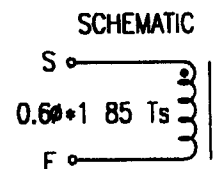
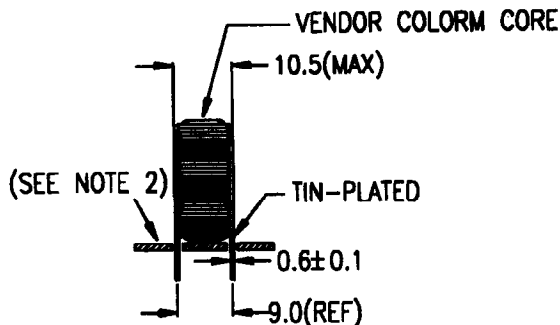
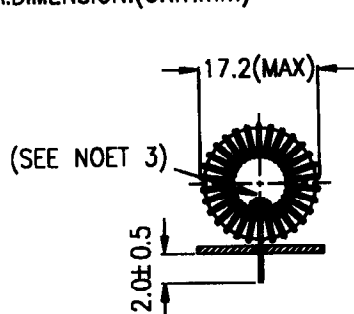


LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132641) 37-C19000504	A	7

SOURCE CONTROL DRAWING

FILE:T6026\C1700051

A.DIMENSION:(UNIT:mm)



NOTE:

1. THE WINDING CAN BE WRAP AROUND ALL OF THE FIRST LAYER. THE SECOND AND THIRD LAYERS SHOULD BE WRAPED AROUND ON TOP AND BOTTOM OF CORE.
2. THE PCB THICKNESS: 1.0 mm.
3. THE EPOXY SHALL BE PLACED TOROID INSIDE.

CL CODE	PART NO.	REV.
37	(132093) 37-C19000501	A

SPECIFICATION CONTROL DRAWING

Unless otherwise specified : dimensions are in mm. Tolerance : ANGLES: $\pm 0.5^\circ$ DECIMALS: .X ± 0.3 .xx ± 0.10	APPROVED		DATE	LITEON POWER CONVERSION	
	DRAFT BY	張 穎 / 趙忠祥	01/21'02	TITLE: CURRENT TRANSFORMER TR9 (O.D)*5(I.D.)*3(H) R8K	
	SAFETY ENGR	<i>[Signature]</i>	<i>1/23'02</i>		
	DE / ME ENGR	賴威烈	1/23'02		
DO NOT SCALE DRAWING	APPROVED BY	<i>[Signature]</i>	1/23'02	SCALE: NONE	SHEET 1 OF 7

RECORD OF REVISION					
DOC NO.	REV.	PAGES	DESCRIPTION	DATE	ENGINEER
		AFFECTED	ITEMS BE CHANGED OVER , (FROM / T0)		
	A		INITIAL	01/21'02	張 穎

NOTE: SPEC REV. EXPRESSION RULES:

1. BEFORE THE YELLOW BOOK RELEASE: X1, X2, X3...
2. AFTER THE YELLOW BOOK RELEASE : A,B,C...

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.(132093)37-C19000501	A	2

1. SCOPE

This specification defines the requirements for a CURRENT TRANSFORMER to be installed into a Switching Mode Power Supply operating above the audible range.

2. PHYSICAL REQUIREMENTS(實物特徵，含外觀尺寸、元件標示、機械特性等)

2.1 OUTLINE DIMENSION

The finished device shall have the physical dimensions as shown in Figure -1 (unit: mm).

2.2 MARKING

Vendor color code

3. ELECTRICAL REQUIREMENTS(電性需求，應註明試驗條件)

Unless otherwise specified, measurements at +25°C.

3.1 SCHEMATIC

The choke shall meet the schematic representation of Figure -2.

3.2 WINDING (N1) INDUCTANCE

The winding inductance shall be 37.80~78.75mH when measure at 30KHz / 1 Vrms

3.3 DC RESISTANCE

The DC resistance shall meet following specification.

3.3.1 R (1 - 4) : 4.775 OHM(MAX)

NOTE:

Inductance measurements are made with a $\pm 1\%$ or better accuracy equipment, HP4192A or equivalent.

4. MATERIALS & CONSTRUCTION(材質及結構)

MATERIALS:

All materials shall be UL "Recognized" for a minimum flammability rating of 94V-0 and operating temperature of 130°C unless otherwise specified.

All materials submerged for testing by a vendor and approved by LITEON engineering may be used!

4.1 MAGNET WIRE

The wire shall be UL " recognized component magnet wire " (OBMW2), and shall conform to the requirements set forth in NEMA MW28C heavy or single, Type B (130°C) heavy or single build, Polyurethane base coat with polyamide (Nylon) top coat.

PACIFIC ELECTRIC WIRE & CABLE: DD-NYU (UEW-N) UL FILE NO.: E84081 or various manufacturer's

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132093) 37-C1900050	A	➤

4.2 CORE

A toroid ferrite core shall be used for the inductor core. The core shall meet the following electrical parameters in the TR9(O.D.)*5(I.D.)*3(H) mechanical package.

The following core shall meet the above requirements, but may only be used if approved.

VAKOS	R8K	AL=2800nH/N*N+/-25%	P/N:R8KT9*5*3
CHILISIN	MJ	AL=2400nH/N*N+/-30%	P/N:MJT9*5*3

4.3 BASE MATERIAL

The base material shall be UL "Recognized component plastics" (QMFZ2), have a 94V-0 minimum flame rating, and be rated 130 °C minimum. All materials shall meet the 0.79 mm minimum wall thickness under the flame and rating for the material.

CHANG CHUN PLASTICS PHENOLIC T375J UL FILE NO.: E59481 meet these requirements.

BOBBIN MFG. PIN SHING P/N : PB-025

4.4 SLEEVING

The functional sleeving shall be Polytetrafluoroethylene (PTFE), UL "Recognized" (YDPU2), rated +200°C, 300V, VW-1. Color optional if UL "Recognized"

GREAT HOLDING INDUSTRIAL CO., LTD, TFT-200C-300V UL FILE NO.:E156256 or various manufacturer's.

4.5 EPOXY

CONAP INC. AD-3 or equivalent.

4.6 CORE COATING

THE CORE SHALL BE UNIFORMLY COATED WITH A DIELECTRIC FINISH. THE FINISH SHALL HAVE A MINIMUM SPECIFIED BREAKDOWN OF 2000 VAC.

THE FINISH IS EXEMPT FROM UL RECOGNITION AND FLAMMABILITY REQUIREMENTS.

這鐵心必須COATING成綠色

CONSTRUCTION:

Figure 2 for Electrical Schematic.

4.7 WINDING (N1)

This winding shall be wound with 150 turns of 0.1 Ø*1 magnet wire.

4.8 WINDING (N2)

This winding shall be wound with 1 turns of 0.8 Ø*1 magnet wire. This winding shall be sleeved with functional sleeving.

5. ENVIRONMENTAL REQUIREMENTS(環境要求，含試驗名稱、條件及步驟)

Unless otherwise specified, when subjected to the following conditions, devices within this specification shall have no change in appearance, physical dimensions, or functionality.

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132093) 37-C1900050	A	4

5.1 OPERATING TEMPERATURE

Operating temperature range shall be 0°C to +90°C

5.2 NON-OPERATING TEMPERATURE STORAGE

-30°C to +50°C temperature

5.3 SOLDERABILITY

This device shall be solderable to MIL-STD-202 METHOD 208. Finish shall be bright and free of contaminants.

6. SAFETY REQUIREMENTS(安規要求)

6.1 HI-POT REQUIREMENT: ALL PARTS SHALL BE 100% DO HI-POT TEST at +25°C +/-5°C. THERE SHALL BE NO FAILURE.

COIL - COIL 650VAC/1mA/3SEC

7. PREPARATION FOR DELIVERY(包裝方式及運送規定)

7.1 PACKAGING

Shall be BULK with sufficient packing and wrapping to protect against damage or loss during shipment from the Supplier to destination specified in the purchase order.

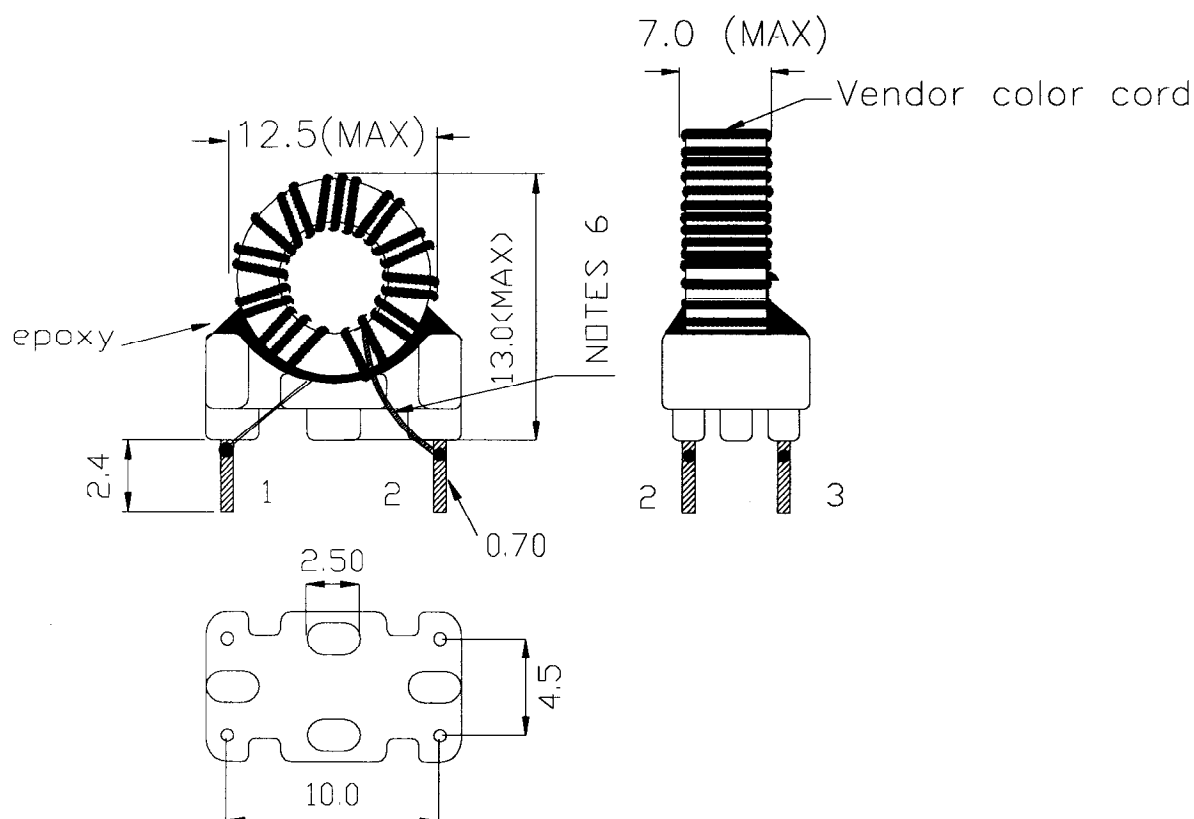
7.2 SHIPPING CONTAINER

Each shipping container shall include, but not be limited to, the following requirements on the packing case and/or packing container.

LITE-ON PART NUMBER
PURCHASE ORDER NUMBER
QUANTITY

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132093) 37-C1900050	A	5

FIGURE-1
OUTLINE DIMENSION (UNIT: mm)



NOTES:

1. COIL BODY CAN NOT SLANT OUT THE BASE OUTLINE.
2. THE PIN SOLDERING HEIGHT CAN NOT OVER STOPPER
3. EPOXY SHALL BE FILLED BETWEEN TOROID AND BASE OF HEADER.
4. ALL DIMENSION MUST MEET ABOVE-MENTION REQUIREMENT.
5. MAXIMUM TEMPERATURE OF OVEN THAT THE EPOXY CHOKE IS INSIDE MUST NOT EXCEEDS 100 J
6. N2 WIRE NEFLON TUBE.

LITEON POWER CONVERSION

SPECIFICATION CONTROL DRAWING

SIZE

A4

MODEL NAME: PA-1900-05D

PART NO.: (132093) 37-C19000501

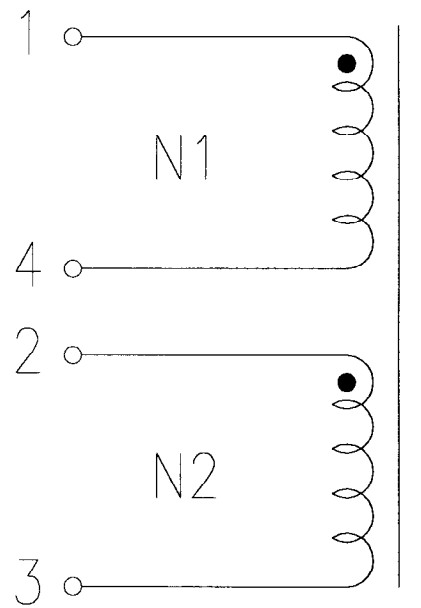
REV

A

SHEET

6

FIGURE-2
ELECTRICAL SCHEMATIC



LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132093) 37-C19000501	A	7

CL CODE	PART NO.	REV.
37	(132094) 37-C19000502	A

SPECIFICATION CONTROL DRAWING

UNLESS OTHERWISE SPECIFIED : DIMENSIONS ARE IN MM. TOLERANCE : ANGLES: $\pm 0.5^\circ$ DECIMALS: $X \pm 0.3$ $XX \pm 0.10$	APPROVED		DATE	LITEON POWER CONVERSION	
	DRAFT BY	張穎 / 趙忠祥	01/22'02	TITLE: PFC CHOKE RM-10 (12PIN) NC-2H	
	SAFETY ENGR	<i>[Signature]</i>	1/27'02		
	DE / ME ENGR	<i>[Signature]</i>	1/27'02		
DO NOT SCALE DRAWING	APPROVED BY	<i>[Signature]</i>	1/23'02	SCALE: NONE	SHEET 1 OF 11

RECORD OF REVISION

[illegible]

NOTE: SPEC REV. EXPRESSION RULES:
Before the wallow back, enter X_1, X_2, X_3

After the yellow book release : A B C

After the yellow book release (A, B, C):

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	SPECIFICATION CONTROL DRAWING	A4	PART NO.(132094)37-C19000502	A

NPS-MR-C043



1. SCOPE

This specification defines the requirements for a PFC CHOCK to be installed into a Switching Mode Power Supply operating above the audible range.

2. PHYSICAL REQUIREMENTS(實物特徵，含外觀尺寸、元件標示、機械特性等)

2.1 OUTLINE DIMENSION

The finished device shall have the physical dimensions as shown in Figure -1 (unit: mm).

2.2 TERMINAL STRENGTH

2.2.1 TERMINAL PULL STRENGTH

The transformer is placed in a vertical position then withstands 2.0Kg of steady pull applied axially to terminals 3.0Kg of steady pull applied axially for wires for a period of 1 minute.

2.2.2 TERMINAL BEND STRENGTH

The transformer is placed in a vertical position and the weight of 2.0Kg is applied to one lead and then the transformer is slowly rotated 90° to a horizontal position for 1 minute and then returned to a vertically (original) position. Thus completing two bends two additional bends are made in the opposite direction for total four bends. The period of 2.5 seconds rotate 90°.

2.3 MARKING

Units and or packages shall be identified with a suitable silk-screen, stamp, or printed label with, but not limited to, the following:

LITEON PART NUMBER (37-C19000502)
HPOK MARKING AND CURRENT REVISION LETTER (REV.A)
DATE CODE OR LOT CODE & SITE CODE
MANUFACTURER'S NAME OR LOGO AND MANUFACTURE LOCATION

3. ELECTRICAL REQUIREMENTS(電性需求，應註明試驗條件)

Unless otherwise specified, measurements at +25°C.

3.1 SCHEMATIC

The choke shall meet the schematic representation of Figure -3.

3.2 PRIMARY INDUCTANCE

The primary inductance shall be 460 uH +/-5% when measurement at 20 KHz / 0.1 Vrms from pin 2 to 12.

3.3 DC RESISTANCE

The DC resistance shall meet following specification.

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132094) 37-C19000502	A	3

3.3.1 R (2 – 12): 133.35mOHM (MAX)

3.3.2 R (7 – 8): 200.51mOHM (MAX)

3.4 絕緣阻抗測試

PIN 8 to 鐵心頂部(無凡力水處): 100 KOHM(MAX)

3.5 TRANSFORMATION RATIO

The transformation ratio and polarity measurements shall be made the bridge method at a frequency of $1.0K \pm 100$ Hz and 1.0 ± 0.25 Vrms. The value of transformation ratio shall be specified in the individual specifications.

3.6 POLARITY

The polarity measurements shall be made the bridge method at a frequency of $1.0K \pm 100$ Hz and 1.0 ± 0.25 Vrms. The markings of polarity of each winding shall be specified in the individual schematic specifications.

NOTE:

Inductance measurements are made with a $\pm 1\%$ or better accuracy equipment, HP4284A or equivalent.
DCR measurements are made with a CHEN HWA 502A.

4. MATERIALS & CONSTRUCTION(材質及結構)

MATERIALS:

All materials shall be UL "Recognized" for a minimum flammability rating of 94V-0 and operating temperature of 130°C unless otherwise specified. All materials submerged for testing by a vendor and approved by LITEON engineering may be used!

All retardant flame products can not contain any of the PBDEs (PolyBrominated Diphenyl ethers) and PBBs (PolyBrominated Bisphenyls).

Note: PBDEs (PBBO, PBDO, PBDPO, PBDPE)

4.1 MAGNET WIRE

The wire shall be UL " recognized component magnet wire " (OBMW2), and shall conform to the requirements set forth in NEMA MW28C heavy or single, Type B (130°C) heavy or single build, Polyurethane base coat with polyamide (Nylon) top coat.

PACIFIC ELECTRIC WIRE & CABLE: DD-NYU (UEW-N) UL FILE NO.: E84081 or various manufacturer's

4.2 LITZ WIRE

The wire shall be UL " recognized component magnet wire " (OBMW2), and shall conform to the requirements set forth in NEMA MW28C heavy or single, Type B (130°C) heavy or single build, Polyurethane base coat with polyamide (Nylon) top coat.

PACIFIC ELECTRIC WIRE & CABLE: DD-NYU (UEW-N) UL FILE NO.: E84081 or various manufacturer's

4.3 CORE

A gapped ferrite shall be used for the inductor core. The core shall meet the following electrical parameters in the RM-10 mechanical package. Gap the center leg of the core, do not gap the other legs.

The following core shall meet the above requirements, but may only be used if approved.

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132094) 37-C19000502	A	4
SPECIFICATION CONTROL DRAWING				

TDK Ferrite:	PC40	AL=4850 +/-25% nH/N*N	P/N:PC40RM10Z-12
NICERA Ferrite:	NC-2H	AL=4800 +/-25% nH/N*N	P/N:NC2HFRM-10
SAMWHA Ferrite:	PL-9	AL=5240 +/-25% nH/N*N	P/N:PL-9 RM-10

4.4 BOBBIN MATERIAL

The bobbin material shall be UL "Recognized component plastics" (QMFZ2), have a 94V-0 minimum flame rating, and be rated 130°C minimum. All materials shall meet the 0.43 mm minimum wall thickness under the UL flame and temperature rating for the material; or it shall meet the wall thickness minimum under the Vendor's Class B system, whichever is greater.

SUMITOMO BAKELITE PHENOLIC .SUMIKON . PM-9820 UL FILE NO.: E41429 meet these requirements.

BOBBIN MFG. HO JINN P/N : RM-1059.

4.5 EPOXY

CONAP INC. AD-3 or equivalent.

4.6 MARGIN TAPE

3M #44 meets these requirements

4.7 INSULATION TAPE

The functional insulation shall be UL "Recognized component insulation tape" (OANZ2) and have a dielectric strength of 3000 Vac per layer, at +130°C.

3M #1350F color yellow UL FILE NO.: E17385 meets these requirements.

4.8 TRIPLE-LAYERS INSULATION TAPE

The triple-layers insulation shall be UL "Recognized component insulation tape" (OANZ2) and have a dielectric strength of 8000 Vac , at +130°C.

3M #1350T-1 triple-layers insulation tape UL FILE NO.: E17385 meets these requirements

4.9 COPPER FOIL SHIELD-EXTERNAL

3M #1181 FOIL

4.10 CORE INSULATION TAPE

3M #1350F color yellow or equivalent.

4.11 SLEEVING

The functional sleeving shall be Polytetrafluoroethylene (PTFE), UL "Recognized" (YDPU2), rated +200°C , 300V,VW-1.Color optional if UL .Recognized.

GREAT HOLDING INDUSTRIAL CO., LTD, TFT-200C-300V UL FILE NO.:E156256 or various manufacturer.s.

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132094) 37-C19000502	A	5

ONLY HITACHI CHEMICAL CO., LTD. Part Number WP-2952F-2G UL FILE NO.: E72979 meet the above requirements.

CONSTRUCTION REQUIREMENTS:

See Table-1 for winding information table and Figure 3 for Mechanical Schematic. All start and finish sleeved lead wires in every winding shall meet the 1.5 mm minimum spacing to core surfaces.

4.13 INSULATION LAYER

Place one layer of functional insulation around bobbin tube.

4.14 WINDING #1 (N1)

This winding shall be wound with 43 turns of 0.1Ø *50 litz wire evenly distributed from margin to margin in six layer. There shall be no crossover within the winding. This winding shall be insulated from the next winding by one layer of functional insulation.

4.15 WINDING #1(N2)

This winding shall be wound with 4 turns of 0.2Ø *1 magnet wire evenly distributed from margin to margin in one layer. There shall be no crossover within the winding. This winding shall be insulated from the next winding by one layer of functional insulation.

4.16 COPPER FOIL SHIELD - EXTERNAL (N3)

See Figure 1.

- 先貼一大於12mm之1350T-1於PFC choke 於側面一圈。
- 繞一層3M #1181 (12 mm MIN WIDTH) 銅箔TAPE,從鐵心的正面繞一圈並重疊2.54 mm,銲點的接合處在靠近PIN7 AND PIN 9 , 且 銅箔各轉角處均須折角。
- 繞一層3M #1181 (12 mm MIN WIDTH) 銅箔TAPE,從鐵心的側面繞一圈並重疊2.54 mm,銲點的接合處在靠近PIN1 AND PIN 4. 再銲一條0.3Ø*1的漆包線,並套上TEFLON TUBE再銲至PIN8
- 于正面再繞一塊“ U ” 字形(TOP 端不須包)3M #1350T-1 (12 mm MIN WIDTH*46 mm MIN LENGTH)蓋住銅箔,且TAPE各轉角處均須折角。
- WARP ONE LAYER 3M#1350F 14.5mm(min) width TAPE OUTSIDE TRANSFORMER.

4.17 TRANSFORMER FINISH

Vacuum varnish impregnation shall be performed using a thermosetting epoxy resin. The vacuum impregnation shall include the entire bobbin and core assembly.(凡立水的比重至少0.9以免產生異音)

5. ENVIRONMENTAL REQUIREMENTS(環境要求, 含試驗名稱、條件及步驟)

Unless otherwise specified, when subjected to the following conditions, devices within this specification shall have no change in appearance, physical dimensions, or functionality.

5.1 OPERATING TEMPERATURE

Operating temperature range shall be 0°C to +130°C

5.2 NON-OPERATING TEMPERATURE STORAGE

-30°C to +50°C temperature

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132094) 37-C19000502	A	6

5.3 SOLDERABILITY

This device shall be solderable to MIL-STD-202 METHOD 208. Finish shall be bright and free of contaminants.

6. SAFETY REQUIREMENTS(安規要求)

6.1 DIELECTRIC STRENGTH OF COIL AND COIL OR COIL CORE INSULATIONS:
DIELECTRIC STRENGTH IS VERIFIED USING A PROOF-TEST VOLTAGE METHOD. ANY TRANSFORMER EXHIBITING CORONA, FLASHOVER, BREAKDOWN, OR LEAKAGE CURRENT EXCEEDING 1 MARMS WHILE THE PROOF-TEST VOLTAGE IS APPLIED IS DEEMED A FAILURE. IMMEDIATELY FOLLOWING APPLICATION OF PROOF-TEST VOLTAGE, THE INSULATION RESISTANCE SHALL TEST GREATER THAN 100 MOHM AT 500 VDC. BEFORE PROOF-TESTS ARE PERFORMED, THE TRANSFORMER SHALL BE STORED FOR EIGHT HOURS AT 25°C+/-5°C AND AT A RELATIVE HUMIDITY OF 91% TO 93%. THIS IS FOR QUALIFICATION SAMPLES FOR DEFECT INSPECTION.

6.2 MARGIN TAPE: 3.2mm

6.3 HI-POT REQUIREMENT: ALL PARTS SHALL BE 100% DO HI-POT TEST at +25°C +/-5°C. THERE SHALL BE NO FAILURE.

PRI – SEC 1800VAC/1mA/3SEC

7. PREPARATION FOR DELIVERY(包裝方式及運送規定)

7.1 PACKAGING

Shall be BULK with sufficient packing and wrapping to protect against damage or loss during shipment from the Supplier to destination specified in the purchase order.

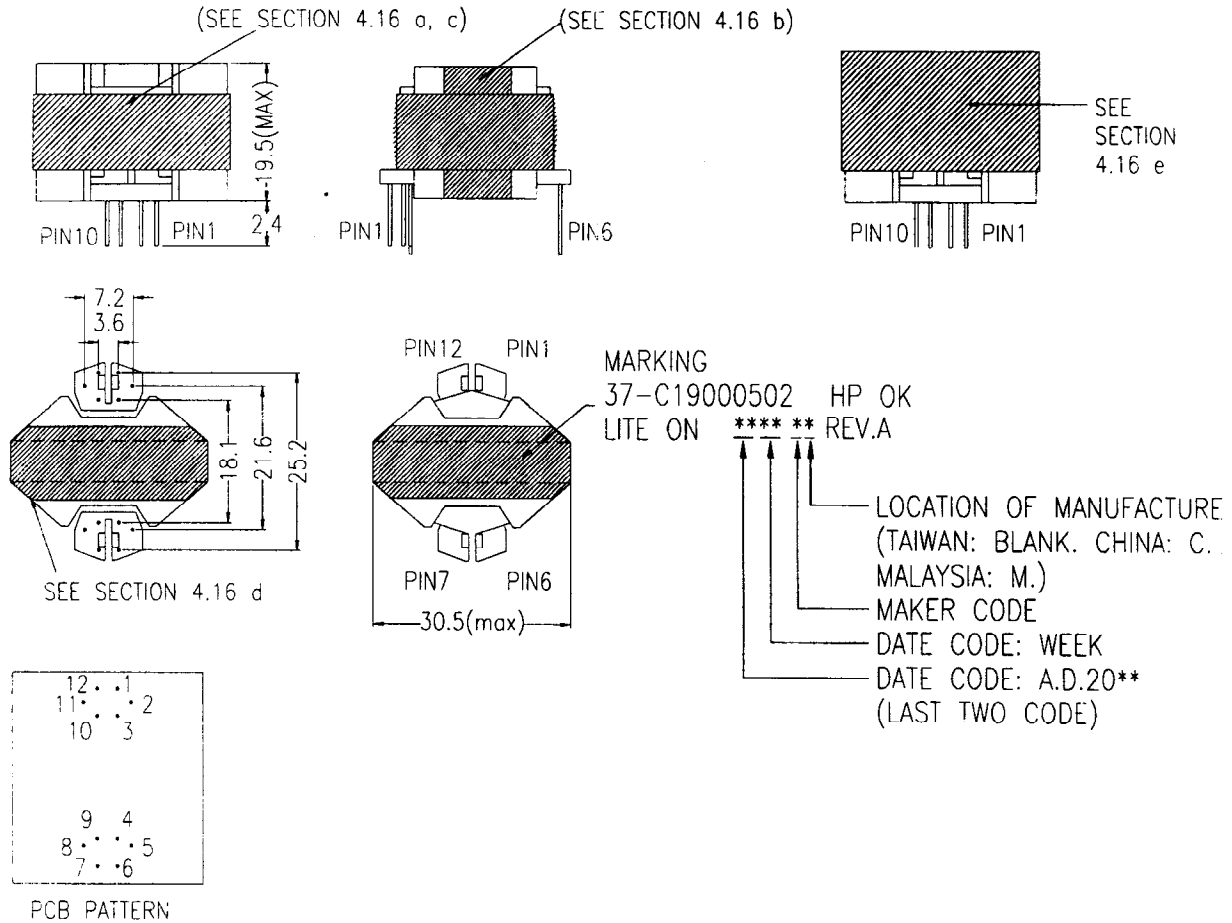
7.2 SHIPPING CONTAINER

Each shipping container shall include, but not be limited to, the following requirements on the packing case and/or packing container.

LITE-ON PART NUMBER
PURCHASE ORDER NUMBER
QUANTITY

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132094) 37-C19000502	A	7

FIGURE-1
OUTLINE DIMENSION (UNIT: mm)



NOTES:

1. CUT OFF PIN : 1,3,4,5,6,9,10,11
2. BOBBIN須先加工,於中心處繞8T*3.2 mm MARGIN TAPE.
3. PLACE MARKING ON THE TOP SIDE OF THE TRANSFORMER.
4. CHOKE鐵心中柱須點Epoxy.
5. N1出線接pin2 處應靠邊.

LITEON

POWER CONVERSION

SPECIFICATION CONTROL DRAWING

SIZE

A4

MODEL NAME: PA-1900-05D

PART NO.:(132094) 37-C19000502

REV

A

SHEET

8

TABLE-1
WINDING INFORMATION TABLE

WINDING DATA							INSULATION					
WDG	WIRE/MATERIAL	TURNS	LAYERS	TURNS/LAYERS	ST	FIN	CREEPAGE TURNS	AFTER WINDING	SLEEVING	ST	FIN	NOTE
								TAPE 1 T	TEFLON	---	---	3
N1	0.1Ø*50	43	6	6/9/8/8/9/3	2	12		TAPE 1 T	TEFLON	✓	✓	
N2	0.2Ø*1	4	1	4	8	7		TAPE 1 T	TEFLON	✓	✓	1
N3	3M#1181銅箔TAPE				---	8		TAPE 1 T		---	✓	4

NOTE:

1. (S);SPREAD WINDING.
2. ADD LAYER INSULATION.
3. PALCE ONE LAYER OF FUNCTION AROUND BOBBIN TUBE.
4. N3 LEAD WIRE 0.3Ø*1.
5. BOBBIN WINDING AREA: 10.5 mm (REF).

LITEON

POWER CONVERSION

SPECIFICATION CONTROL DRAWING

SIZE

A4

MODEL NAME: PA-1900-05D

PART NO.:(132094) 37-C19000502

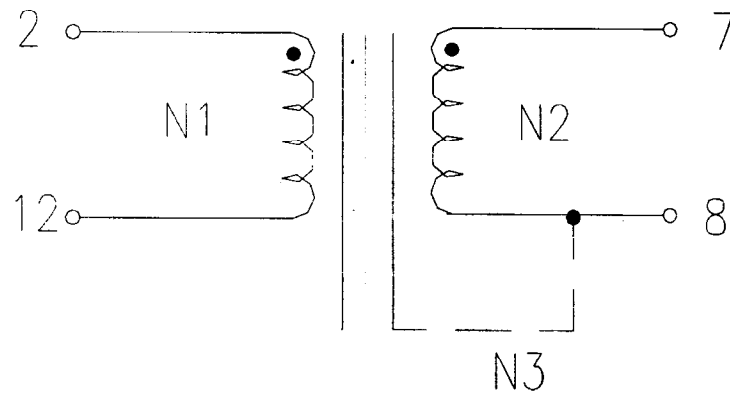
REV

A

SHEET

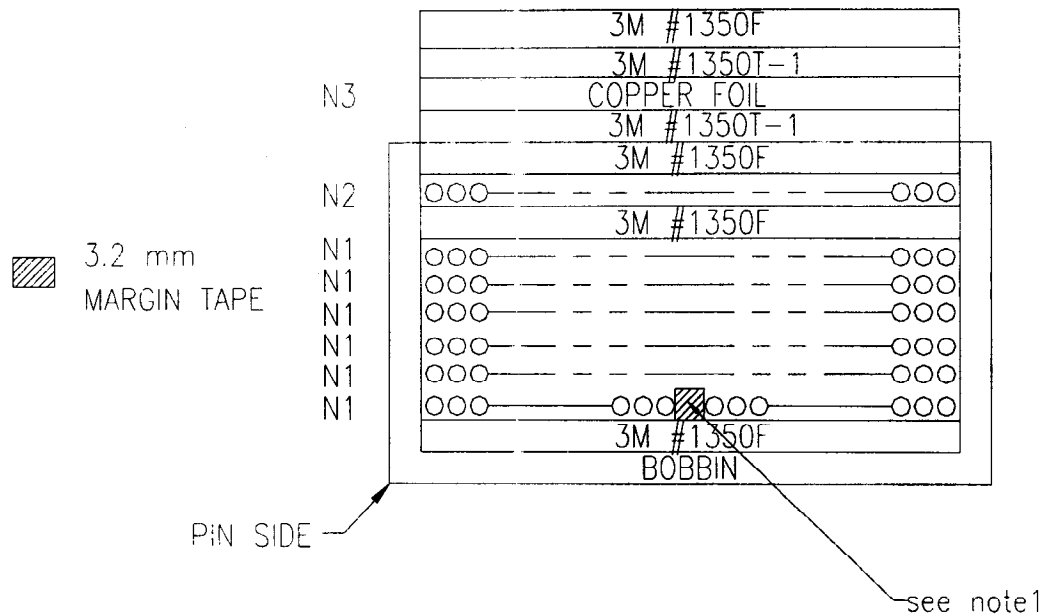
9

FIGURE-2
ELECTRICAL SCHEMATIC



LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132094) 37-C19000502	A	10

FIGURE-3
MECHANICAL SCHEMATIC



NOTES:

1. BOBBIN須先加工,於中心處繞8T*3.2 MM MARGIN TAPE

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132094) 37-C19000502	A	11

CL CODE	PART NO.	REV.
42	(132092)42-M190005P01	A

SPECIFICATION CONTROL DRAWING

UNLESS OTHERWISE SPECIFIED : DIMENSIONS ARE IN mm. TOLERANCE : Angles: $\pm 0.5^\circ$ Decimals: $.x \pm 0.3$ $.XX \pm 0.10$	APPROVED		DATE	LITEON POWER CONVERSION TITLE: POWER TRANSFORMER C30/19-52 (10PIN) PC40	
	DRAFT BY	趙忠祥	01/25/02		
	SAFETY ENGR	賴永烈	1/28/02		
	DE / ME ENGR	賴永烈	1/28/02		
DO NOT SCALE DRAWING	APPROVED BY	賴永烈	1/28/02	SCALE: NONE	SHEET 1 OF 15

RECORD OF REVISION					
DOC NO.	REV.	PAGES AFFECTED	DESCRIPTION	DATE	ENGINEER
			ITEMS BE CHANGED OVER , (FROM / TO)		
	A		INITIAL	01/25/02	趙忠祥

NOTE: SPEC REV. EXPRESSION RULES:

- BEFORE THE YELLOW BOOK RELEASE: X1, X2, X3...
- AFTER THE YELLOW BOOK RELEASE : A, B, C...

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.(132092)42-M190005P01	A	2

1. SCOPE

This specification defines the requirements for a POWER TRANSFORMER to be installed into a Switching Mode Power Supply operating above the audible range.

2. PHYSICAL REQUIREMENTS(實物特徵，含外觀尺寸、元件標示、機械特性等)

2.1 OUTLINE DIMENSION

The finished device shall have the physical dimensions as shown in Figure -1 (unit: mm).

2.2 TERMINAL STRENGTH

2.2.1 TERMINAL PULL STRENGTH

The transformer is placed in a vertical position then withstands 2.0Kg of steady pull applied axially to terminals 3.0Kg of steady pull applied axially for wires for a period of 1 minute.

2.2.2 TERMINAL BEND STRENGTH

The transformer is placed in a vertical position and the weight of 2.0Kg is applied to one lead and then the transformer is slowly rotated 90° to a horizontal position for 1 minute and then returned to a vertically (original) position. Thus completing two bends two additional bends are made in the opposite direction for total four bends. The period of 2.5 seconds rotate 90°.

2.3 MARKING

Units and or packages shall be identified with a suitable silk-screen, stamp, or printed label with, but not limited to, the following:

LITEON PART NUMBER (42-M190005P01)
HPOK MARKING AND CURRENT REVISION LETTER (REV.A)
DATE CODE OR LOT CODE & SITE CODE
MANUFACTURER'S NAME OR LOGO AND MANUFACTURE LOCATION

3. ELECTRICAL REQUIREMENTS(電性需求，應註明試驗條件)

Unless otherwise specified, measurements at +25°C.

3.1 SCHEMATIC

The choke shall meet the schematic representation of Figure -3.

3.2 PRIMARY INDUCTANCE

The primary inductance shall be 500 uH +/-5% when measurement at 20 KHz / 0.1 Vrms from pin 1 to 2.

3.3 LEAKAGE INDUCTANCE #1

The primary to secondary leakage shall be measurement by measuring the primary inductance (pin 1 to 2) at 20 KHz / 0.1 Vrms, when secondary shorted, inductance shall be less than 7 uH.

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SPECIFICATION CONTROL DRAWING				

3.4 LEAKAGE INDUCTANCE #2

The primary to auxiliary leakage shall be measurement by measuring the primary inductance (pin 1 to 2) at 20 KHz / 0.1 Vrms, when auxiliary shorted (pin 4 to 5), inductance shall be less than 13 uH.

3.5 DC RESISTANCE

The DC resistance shall meet following specification.

3.5.1 R (1 - 2) : 380 mOHM(MAX)

3.5.2 R (4 - 5) : 242 mOHM(MAX)

3.5.3 R (FLY1 - FLY2) : 10 mOHM(MAX)

3.5.4 R (9 - 6) : 306 mOHM(MAX)

3.6 TRANSFORMATION RATIO

The transformation ratio and polarity measurements shall be made the bridge method at a frequency of 1.0K±100 Hz and 1.0 ±0.25Vrms. The value of transformation ratio shall be specified in the individual specifications.

3.7 POLARITY

The polarity measurements shall be made the bridge method at a frequency of 1.0K±100 Hz and 1.0 ±0.25Vrms. The markings of polarity of each winding shall be specified in the individual schematic specifications.

NOTE:

Inductance measurements are made with a ±1% or better accuracy equipment, HP4284A or equivalent.

DCR measurements are made with a CHEN HWA 502A

絕緣阻抗用三用電錶(MULTIMETER)不限廠牌.

4. MATERIALS & CONSTRUCTION(材質及結構)

MATERIALS:

All materials shall be UL "Recognized" for a minimum flammability rating of 94V-0 and operating temperature of 130°C unless otherwise specified. And this document shall not violate LITEON CLASS 130(B) LS-130 insulation system.

All materials submerged for testing by a vendor and approved by LITEON engineering may be used!

All retardant flame products can not contain any of the PBDEs (PolyBrominated Diphenyl ethers) and PBBs (PolyBrominated Bisphenyls).

Note: PBDEs (PBBO, PBDO, PBDPO, PBDPE)

4.1 MAGNET WIRE

The wire shall be UL " recognized component magnet wire " (OBMW2), and shall conform to the requirements set forth in NEMA MW28C heavy or single, Type B (130°C) heavy or single build, Polyurethane base coat with polyamide (Nylon) top coat.

PACIFIC ELECTRIC WIRE & CABLE: DD-NYU (UEW-N) UL FILE NO.: E84081 or various manufacturer's

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4.2 TRIPLE INSULATION WINDING WIRE

The wire shall be UL " recognized component special transformer winding wire " (OBS2), and shall conform to the requirements set forth in triple insulation winding wire.

TOTOKU : TIW-3 UL FILE NO.: E166483 meet these requirements.

4.3 CORE

A gapped ferrite shall be used for the inductor core. The core shall meet the following electrical parameters in the C30/19-52 mechanical package. Gap the center leg of the core, do not gap the other legs.

The following core shall meet the above requirements, but may only be used if approved.

TDK Ferrite:	PC40	AL=4810 min nH/N*N	P/N:PC40C30/19-52
NICERA Ferrite	NC-2H	AL=5570+/-25% nH/N*N	P/N:NC-2HFSS30.0/19.0/20.3
SAMWHA Ferrite	PL-9	AL=6680+/-25% nH/N*N	P/N:PL-9DS3019

4.4 BOBBIN MATERIAL

The bobbin material shall be UL "Recognized component plastics" (QMFZ2), have a 94V-0 minimum flame rating, and be rated 130°C minimum. All materials shall meet the 0.43 mm minimum wall thickness under the UL flame and temperature rating for the material; or it shall meet the wall thickness minimum under the Vendor's Class B system, whichever is greater.

SUMITOMO BAKELITE PHENOLIC (PF) "SUMICON" PM-9820 UL FILE NO.: E41429 meet these requirements.

BOBBIN MFG. PINSHINE P/N : P-3008, AND HO-JIN P/N : POT-3021

4.5 INSULATION TAPE

The functional insulation shall be UL "Recognized component insulation tape" (OANZ2) and have a dielectric strength of 3000 Vac per layer, at +130°C.

3M #1350F color yellow UL FILE NO.: E17385 meets these requirements.

4.6 TRIPLE-LAYERS INSULATION TAPE

The triple-layers insulation shall be UL "Recognized component insulation tape" (OANZ2) and have a dielectric strength of 8000 Vac , at +130°C.

3M #1350T-1 triple-layers insulation tape UL FILE NO.: E17385 meets these requirements.

4.7 COPPER FOIL SHIELD - INTERNAL

Electrical grade soft copper 0.025 mm (thick) X 9 mm (wide) Copper Foil must be free of burrs that could cause a puncture of adjacent insulation.

4.8 EPOXY

CONAP INC AD-3 or equivalent

4.9 CORE INSULATION TAPE

3M #1350F color yellow or equivalent.

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4.10 SLEEVING

The functional sleeving shall be Polytetrafluoroethylene (PTFE), UL "Recognized" (YDPU2), rated +200°C, 300V, VW-1. Color optional if UL "Recognized"

GREAT HOLDING INDUSTRIAL CO., LTD, TFT-200C-300V UL FILE NO.:E156256 or various manufacturer's.

4.11 VARNISH

Varnish used shall be UL "Recognized" (OBOR2), with a minimum system rating of 130 °C.

ONLY HITACHI CHEMATICAL CO., LTD.. Part Number WP-2952F-2G UL FILE NO.: E72979 meet the above requirements.

CONSTRUCTION REQUIREMENTS:

See Table-1 for winding information table and Figure 3 for Mechanical Schematic. All start and finish sleeved lead wires in every winding shall meet the 1.5 mm minimum spacing to core surfaces.

4.12 INSULATION LAYER

Place one layer of functional insulation around bobbin tube.

4.13 PRIMARY #1 WINDING (N1)

This winding shall be wound with 11 turns of 0.3Ø *2 magnet wire evenly distributed from margin to margin in one layers. The start and finish leads shall be sleeved with functional sleeving and extend a minimum of 1.5 mm into the winding turns, in the direction of the winding, and mechanically secured by tape. There shall be no crossover within the winding. This winding shall be insulated from the next winding by one layer of functional insulation.

4.14 INTERNAL COPPER SHIELD#1 (N2)

See Figure 4. This shield (PRIMARY) shall be wound one turn of 0.025mm(thick) X 9mm(width) copper foil. This shield shall be centered within margins and terminated with 0.3Ø X 1 BUSS wire. This copper shield shall be cuffed on the bottom side with a minimum of 2 mm overlap on the top side, with functional insulation. This shield shall be insulated from the next winding by one layer of functional insulation.

4.15 +16V WINDING (N3)

This winding shall be wound with 8 turns of 0.9 Ø *1 triple insulation winding wire evenly distributed from margin to margin in one layer. There shall be no crossover within the winding. This winding shall be insulated from the next winding by one layer of functional insulation.

4.16 AUX WINDING (N4)

This winding shall be wound with 10 turns of 0.15 Ø *3 magnet wire evenly distributed from margin to margin in one layer. The start and finish leads shall be sleeved with functional sleeving and extend a minimum of 1.5 mm into the winding turns, in the direction of the winding, and mechanically secured by tape. There shall be no crossover within the winding. This winding shall be insulated from the next winding by one layer of functional insulation.

4.17 PRIMARY #2 WINDING (N5)

This winding shall be wound with 11 turns of 0.3Ø *2 magnet wire evenly distributed from margin to margin in one layers. The start and finish leads shall be sleeved with functional sleeving and extend a minimum of 1.5 mm into

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
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SPECIFICATION CONTROL DRAWING				

the winding turns, in the direction of the winding, and mechanically secured by tape. There shall be no crossover within the winding . This winding shall be insulated from the next winding by one layer of functional insulation.

4.18 PRIMARY #3 WINDING (N6)

This winding shall be wound with 10 turns of 0.3Ø *2 magnet wire evenly distributed from margin to margin in one layers. The start and finish leads shall be sleeved with functional sleeving and extend a minimum of 1.5 mm into the winding turns, in the direction of the winding, and mechanically secured by tape. There shall be no crossover within the winding . This winding shall be insulated from the next winding by one layer of functional insulation.

4.19 +16V WINDING (N7)

This winding shall be wound with 8 turns of 0.9 Ø *1 triple insulation winding wire evenly distributed from margin to margin in one layer. There shall be no crossover within the winding. This winding shall be insulated from the next winding by one layer of functional insulation.

4.20 DRIVE WINDING (N8)

This winding shall be wound with 6 turns of 0.2 Ø *1 triple insulation winding wire evenly distributed from margin to margin in one layer. The start and finish leads shall be sleeved with functional sleeving and extend a minimum of 1.5 mm into the winding turns, in the direction of the winding, and mechanically secured by tape. There shall be no crossover within the winding This winding shall be insulated from the next winding by one layer of functional insulation.

4.21 INTERNAL COPPER SHIELD#2 (N9)

See Figure 4. This shield (PRIMARY) shall be wound one turn of 0.025mm(thick) X 9mm(width) copper foil. This shield shall be centered within margins and terminated with 0.3Ø X 1 BUSS wire. This copper shield shall be cuffed on the bottom side with a minimum of 2 mm overlap on the top side, with functional insulation. This shield shall be insulated from the next winding by one layer of functional insulation.

4.22 PRIMARY #4 WINDING (N10)

This winding shall be wound with 10 turns of 0.3Ø *2 magnet wire evenly distributed from margin to margin in one layers. The start and finish leads shall be sleeved with functional sleeving and extend a minimum of 1.5 mm into the winding turns, in the direction of the winding, and mechanically secured by tape. There shall be no crossover within the winding This winding shall be insulated from the next winding by two layer of functional insulation.

4.23 TRANSFORMER FINISH

Vacuum varnish impregnation shall be performed using a thermosetting epoxy resin. The vacuum impregnation shall include the entire bobbin and core assembly.

5. ENVIRONMENTAL REQUIREMENTS(環境要求，含試驗名稱、條件及步驟)

Unless otherwise specified, when subjected to the following conditions, devices within this specification shall have no change in appearance, physical dimensions, or functionality.

5.1 OPERATING TEMPERATURE

Operating temperature range shall be 0°C to +105°C

5.2 NON-OPERATING TEMPERATURE STORAGE

-30°C to +50°C temperature

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SPECIFICATION CONTROL DRAWING				

5.3 SOLDERABILITY

This device shall be solderable to MIL-STD-202 METHOD 208. Finish shall be bright and free of contaminants.

5.4 DIELECTRIC STRENGTH OF COIL AND COIL OR COIL CORE INSULATIONS: Dielectric strength is verified using a proof-test voltage method. Any transformer exhibiting corona, flashover, breakdown, or leakage current exceeding 1 mArms while the proof-test voltage is applied is deemed a failure. Immediately following application of proof-test voltage, the insulation resistance shall test greater than 100 megohms at 500 VDC. Before proof-tests are performed, the transformer shall be stored for eight hours at 25°C +/-5°C and at a relative humidity of 91% to 93%. This is for qualification samples for defect inspection.

6. SAFETY REQUIREMENTS(安規要求)

6.1 HI-POT REQUIREMENT: ALL PARTS SHALL BE 100% DO HI-POT TEST at +25°C +/-5 °C. THERE SHALL BE NO FAILURE.

PRI - SEC	3600VAC/1mA/3sec
PRI - PRI	1800VAC/1mA/3sec
SEC-CORE	3600VAC/1mA/3sec
SEC-SEC	650VAC/1mA/3sec

7. PREPARATION FOR DELIVERY(包裝方式及運送規定)

7.1 PACKAGING

Shall be BULK with sufficient packing and wrapping to protect against damage or loss during shipment from the Supplier to destination specified in the purchase order.

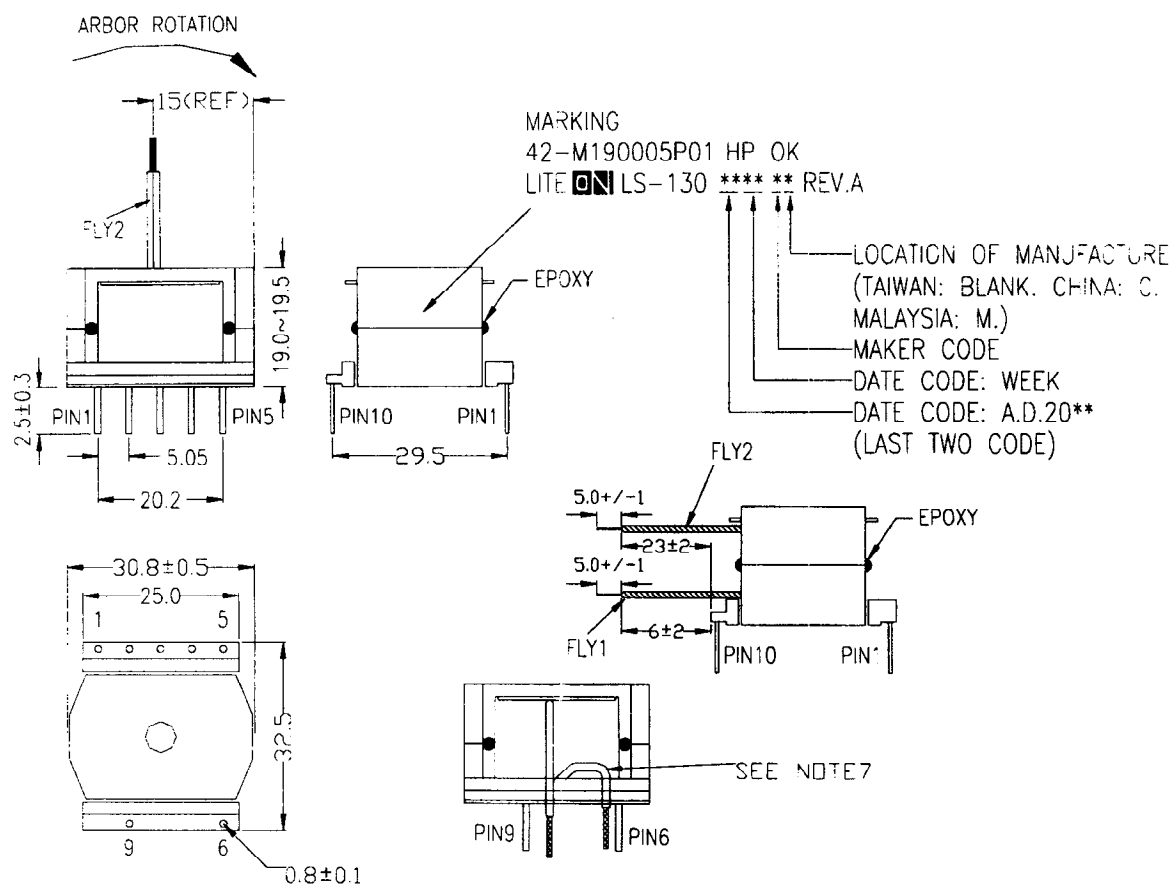
7.2 SHIPPING CONTAINER

Each shipping container shall include, but not be limited to, the following requirements on the packing case and/or packing container.

LITE-ON PART NUMBER
PURCHASE ORDER NUMBER
QUANTITY

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132092)42-M190005P01	A	8

FIGURE-1
OUTLINE DIMENSION (UNIT: mm)

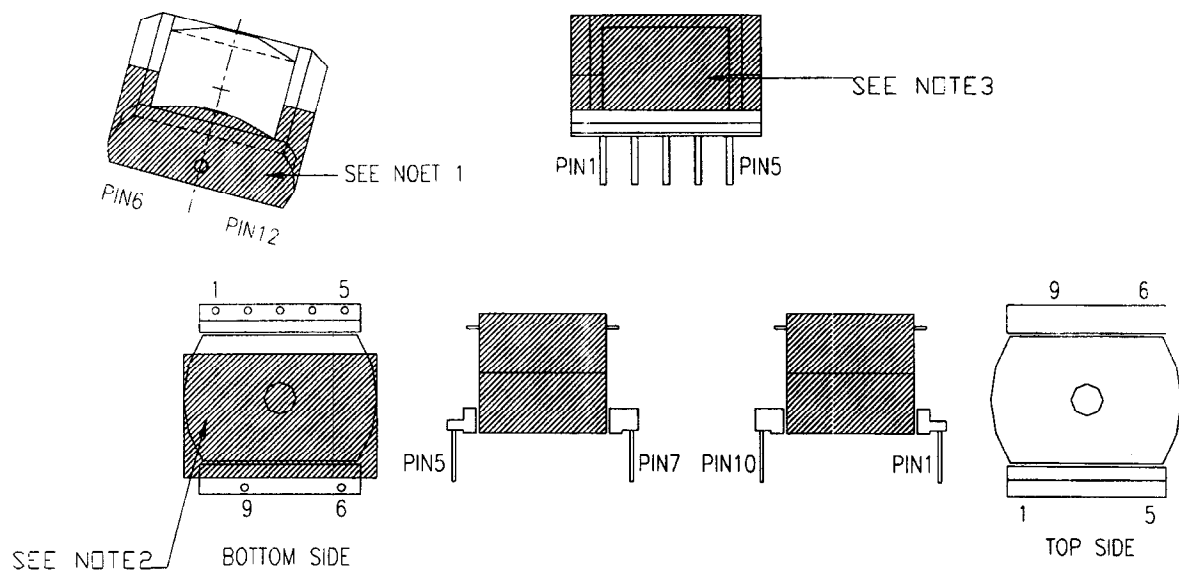


NOTES:

1. CUT OFF PIN 7,8,10.
2. THE PIN SOLDERING HEIGHT CAN NOT OVER STOPPER.
3. PLACE MARKING ON THE SIDE PIN 1 AND PIN 10 OF THE TRANSFORMER.
4. INDICATE FLY1 WITH CONTRSTING INDELIBLE COLOR MARK.
5. THE TRANSFORMER SHALL NO VARNISH ON THE TOP SIDE.
6. 飛線長度從BOBBIN邊量起。
7. 飛線出線以實套PCB 為準。

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FIGURE-2
TAPE ASSEMBLY DETAIL



NOTES:

1. 將core靠二次側處貼一1350T-1反折(不可有間隙).
2. WARP ONE LAYER 20mm(WIDTH)1350T-1(靠近二次側)(變壓器正上方不貼TAPE).
3. WARP ONE LAYERS 15MM(WIDTH) 1350T-1 IN IT.

LITEON

POWER CONVERSION

SPECIFICATION CONTROL DRAWING

SIZE

A4

MODEL NAME: PA-1900-05D

PART NO.:(132092)42-M190005P01

REV

A

SHEET

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TABLE-1
WINDING INFORMATION TABLE

WINDING DATA							INSULATION					
WDG	WIRE/MATERIAL	TURNS	LAYERS	TURNS/L AYERS	ST	FIN	CREEPAGE TURNS	AFTER WINDING	SLEEVING	ST	FIN	NOTE
								TAPE 1 T	TEFLON	---	---	2
N1	0.3Ø*2	11	1	11	1	A		TAPE 1 T	TEFLON	✓	✓	1,6,7
N2	0.025t*9 (COPPER FOIL)	1	1	1	---	5		TAPE 1 T	TEFLON	---	✓	4
N3	0.9Ø*1	8	1	8	FLY2	FLY1		TAPE 1 T	TEFLON	---	---	1,4
N4	0.15Ø*3	10	1	10	4	5		TAPE 1 T	TEFLON	✓	✓	1,7
N5	0.3Ø*2	11	1	11	A	3		TAPE 1 T	TEFLON	✓	✓	1,6,7
N6	0.3Ø*2	10	1	10	3	B		TAPE 1 T	TEFLON	✓	✓	1,6,7
N7	0.9Ø*1	8	1	8	FLY2	FLY1		TAPE 1 T	TEFLON	---	---	1
N8	0.2Ø*1	6	1	6	9	6		TAPE 1 T	TEFLON	✓	✓	1,7
N9	0.025t*9 (COPPER FOIL)	1	1	1	---	5		TAPE 1 T	TEFLON	---	✓	3,7
N10	0.3Ø*2	10	1	10	B	2		TAPE 2 T	TEFLON	✓	✓	1,6,7

NOTE:

1. (S): SPREAD WINDING.
2. PALCE ONE LAYER OF FUNCTION AROUND BOBBIN TUBE.
3. N2 AND N9 LEAD WIRE 0.3Ø*1.
4. N3,N7,N8 TRIPLE INSULATION WINDING WIRE.
5. N5 AND N6 ARE CONTINUOUS WINDINGS.
6. 這A,B 點不能剪斷.
7. THE START AND FINISH LEADS SHALL BE SLEEVED WITH FUNCTIONAL SLEEVING AND EXTEND A MINIMUM OF 1.5 mm (MIN) INTO THE WINDING, IN THE DIRECTION OF THE WINDING, AND MECHANICALLY SECURED BY TAPE.
8. BOBBIN WINDING AREA: 10.6 mm (REF).

LITEON

POWER CONVERSION

SIZE

MODEL NAME: PA-1900-05D

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SHEET

SPECIFICATION CONTROL DRAWING

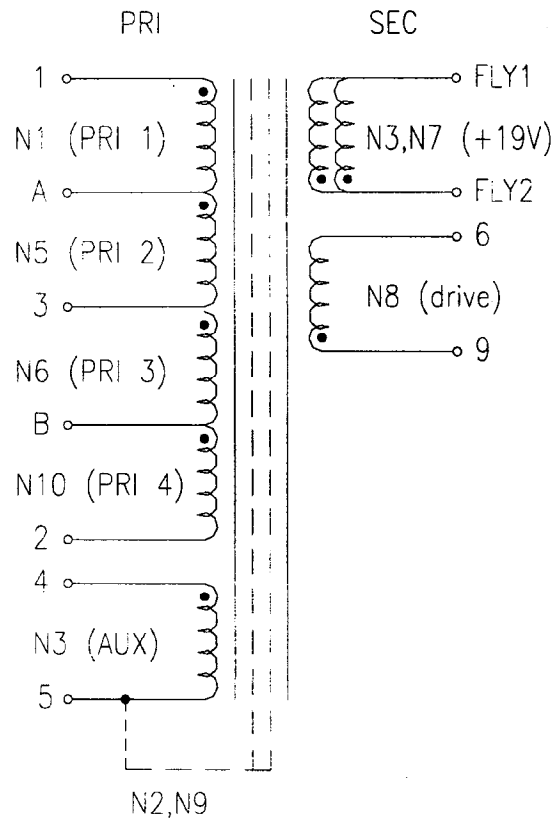
A4

PART NO.:(132092)42-M190005P01

A

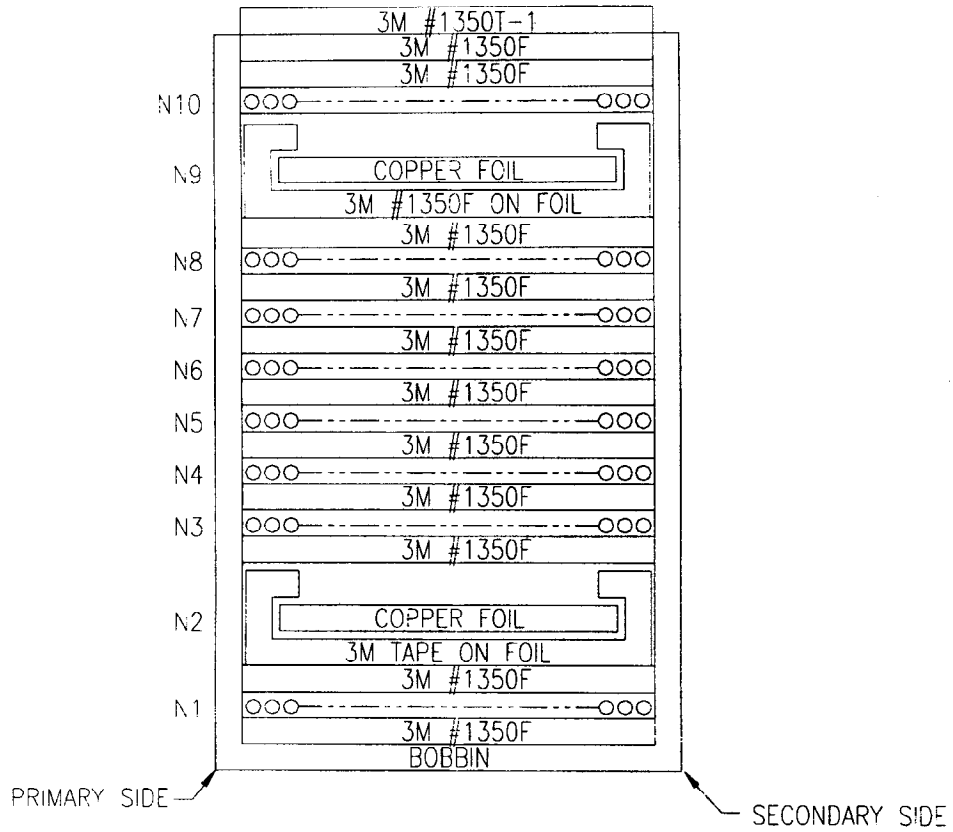
11

FIGURE-3
ELECTRICAL SCHEMATIC



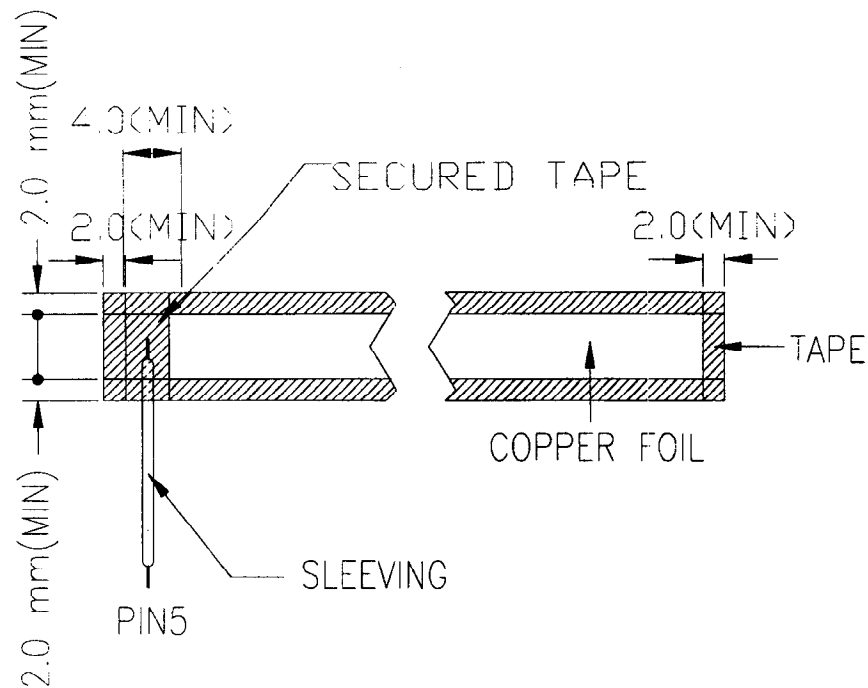
LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132092)42-M190005P01	A	12

FIGURE-4
MECHANICAL SCHEMATIC



LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
	A4	PART NO.:(132092)42-M190005P01	A	13

FIGURE-5
N2, N9 INTERNAL COPPER SHIELD DETAIL

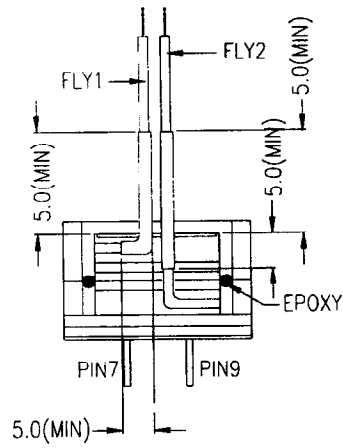


NOTE:

1. THE INTERNAL COPPER SHIELD SHALL BE CUFFED ON THE BOTTOM SIDE WITH A MINIMUM OF 2 mm OVERLAP ON THE TOP SIDE, WITH FUNCTIONAL INSULATION.
2. THE SECURED TAPE WITH COPPER SHIELD MUST OVERLAP.
3. COPPER FOIL 首尾重疊2.54mm(min)

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1900-05D	REV	SHEET
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FIGURE-5
TRIPLE INSULATION DETAIL(FLY1,FLY2,FLY3,FLY4)



NOTE:

1. 這3M #1350T-1反折的長度及寬度必須符合上圖要求.

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CL CODE	PART NO.	REV.
37	(125639) 37-C15301902	B

SPECIFICATION CONTROL DRAWING

Unless otherwise specified : dimensions are in mm. Tolerance : ANGLES: $\pm 0.5^\circ$ DECIMALS: $.X \pm 0.3$ $.XX \pm 0.10$	APPROVED		DATE	LITEON POWER CONVERSION	
	DRAFT BY	張 穎/ 林志榮	02/17'02	TITLE: BEAD CORE RH3.5 (O.D.)*1.5(I.D.)*9.0(H) A6	
	SAFETY ENGR	<i>[Signature]</i>	<i>2/18/02</i>		
	DE / ME ENGR	張 坤 助	<i>2/18/02</i>		
DO NOT SCALE DRAWING	APPROVED BY	<i>Jerry Hsu</i>	<i>2/18/02</i>	SCALE: NONE	SHEET 1 OF 5

RECORD OF REVISION					
DOC NO.	REV.	PAGES	DESCRIPTION	DATE	ENGINEER
		AFFECTED	ITEMS BE CHANGED OVER, (FROM / TO)		
	A		INITIAL	06/14'99	林宜慧
RFC-0202003	B		變更尺寸,從1.3+/-0.15MM 變更為1.4~1.65MM.	02/17'02	張 穎

NOTE: SPEC REV. EXPRESSION RULES:

1. BEFORE THE YELLOW BOOK RELEASE: X1, X2, X3...
2. AFTER THE YELLOW BOOK RELEASE : A,B,C...

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1530-02	REV	SHEET
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1. SCOPE

This specification defines the requirements for a BEAD CORD to be installed into a Switching Mode Power Supply operating above the audible range.

2. PHYSICAL REQUIREMENTS(實物特徵，含外觀尺寸、元件標示、機械特性等)

2.1 OUTLINE DIMENSION

The finished device shall have the physical dimensions as shown in Figure -1 (unit: mm).

3. ELECTRICAL REQUIREMENTS(電性需求，應註明試驗條件)

Unless otherwise specified, measurements at +25°C.

3.1 SCHEMATIC

The choke shall meet the schematic representation of Figure -2.

3.2 IMPEDANCE (S-F) 5 Ω (MIN) at 1MHz / 1Vrms / 0.65mm*63mm

3.3 IMPEDANCE (S-F) 40 Ω (MIN) at 25MHz / 1Vrms / 0.65mm*63mm

3.4 IMPEDANCE (S-F) 56 Ω (MIN) at 100MHz / 1Vrms / 0.65mm*63mm

NOTE:

Inductance measurements are made with a $\pm 1\%$ or better accuracy, HP4284A or equivalent.

4. MATERIALS & CONSTRUCTION(材質及結構)

MATERIALS:

All materials shall be UL "recognized" for minimum flammability rating of 94V-2 and operating temperature of 90°C unless otherwise specified. All materials submitted for testing by a vendor and approved by LITEON engineering may be used!

4.1 CORE

A RH ferrite core shall be used for the inductor core. The core shall meet the following electrical parameters in the RH3.5 (O.D.)*1.5(I.D.)*9(H) mechanical package.

The following core shall meet the above requirements, but may only be used if approved.

CORE-TECH	K6	P/N: RH3.5*1.5*9
KING	A6	P/N: RH3.5*9*1.5

5. ENVIRONMENTAL REQUIREMENTS(環境要求，含試驗名稱、條件及步驟)

Unless otherwise specified, when subjected to the following conditions, devices within this specification shall have no change in appearance, physical dimensions, or functionality.

5.1 OPERATING TEMPERATURE

Operating temperature range shall be 0°C to +90°C

LITEON POWER CONVERSION	SIZE	MODEL NAME: PA-1530-02	REV	SHEET
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SPECIFICATION CONTROL DRAWING				

5.2 NON-OPERATING TEMPERATURE STORAGE

-30°C to +50°C temperature

6. PREPARATION FOR DELIVERY(包裝方式及運送規定)

6.1 PACKAGING

Shall be BULK with sufficient packing and wrapping to protect against damage or loss during shipment from the Supplier to destination specified in the purchase order.

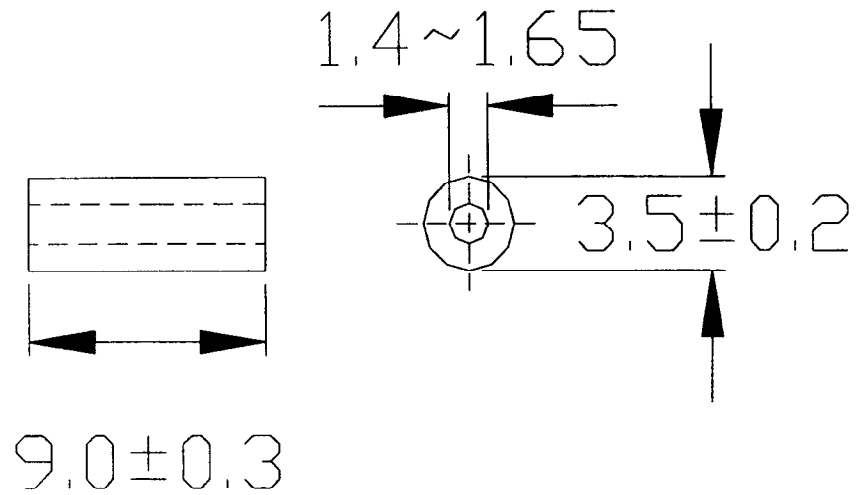
6.2 SHIPPING CONTAINER

Each shipping container shall include, but not be limited to, the following requirements on the packing case and/or packing container.

LITE-ON PART NUMBER
PURCHASE ORDER NUMBER
QUANTITY

LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1530-02	REV	SHEET
	A4	PART NO.:(125639) 37-C15301902	B	4

FIGURE-1
OUTLINE DIMENSION (UNIT: mm)



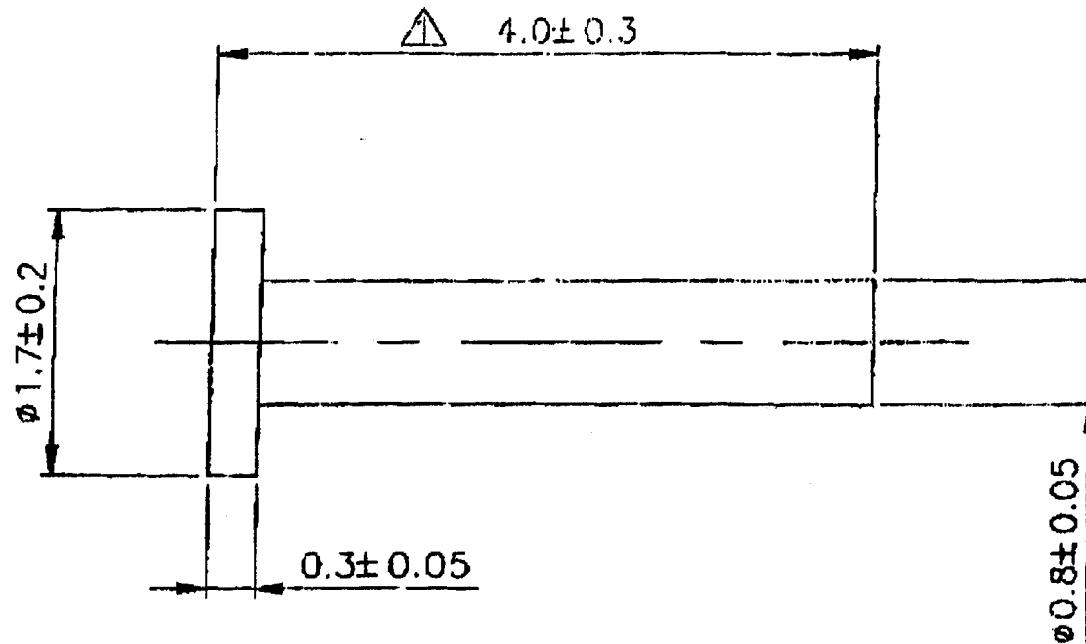
LITEON POWER CONVERSION SPECIFICATION CONTROL DRAWING	SIZE	MODEL NAME: PA-1530-02	REV	SHEET
	A4	PART NO.:(125639) 37-C15301902	B	5

F

		RELEASED	0110'02		PRINTING DATE			2D FILE	DC CORD_PA-1900-05D	DESIGNER	JULIAN			TITLE: DC CORD	PART NO.: (132C49) 04-PM19000501	
REVISION	DESCRIPTION	DATE	ZONE	UNIT: mm	SCALE:			3D FILE		CHECKER		APPROVED: 				PROJECT: PA-1930-05D

NOTE:

1. MATERIAL: BRASS
2. PLATED: TIN PLATED



Model: PA-1500-RD
 PIN: (123373) 45-M/9005(TN)
 Page 3

Rev. No.	Rev. Date	Rev. Description	Rev. By	Rev. Check	Rev. Date	Rev. Description	Rev. By	Rev. Check	Rev. Date	Rev. Description	Rev. By	Rev. Check
1	02.01.31	ECO NO. 910006	APP. NO. B910017	NOTE	REV. A1	SCALE	NONE	UNIT	mm	DATE	02.01.31	
2			PART NO. G1750020									
3			DWG NO. G-128									
4												
5												
6												
7												
8												

TITLE

T-311-1



大衛電子股份有限公司
 David Electronics Co., Ltd.
 大欣電子五金廠(深圳)
 T.D.C. Electronics & Metal Factory

EMI Test Report

MODEL NAME : PA-1900-05D

CUSTOMER : DELL

DATE : 01/23/2002

REV. : A

PREPARED BY : Dearbear Lai

APPROVED BY :

Dearbear 1/23/02

Linkou EMC Lab: 47 14th Lin, Chiapao Tsuen, Linkou, Taipei, Taiwan, R.O.C. Tel (02) 2605-2180 Fax (02) 2605-2943

Hsinchu EMC Lab: 81-1 Luliaokeng, 9th Lin, Wulung Tsuen, Chiunglin, Hsinchu, Taiwan, R.O.C. Tel (03) 593-5343 Fax (03) 5939342

Brand / Model : PA-1900-05D

Test Mode :

Power Source : 230V/50Hz

Remark :

Tested by : WILLIAM

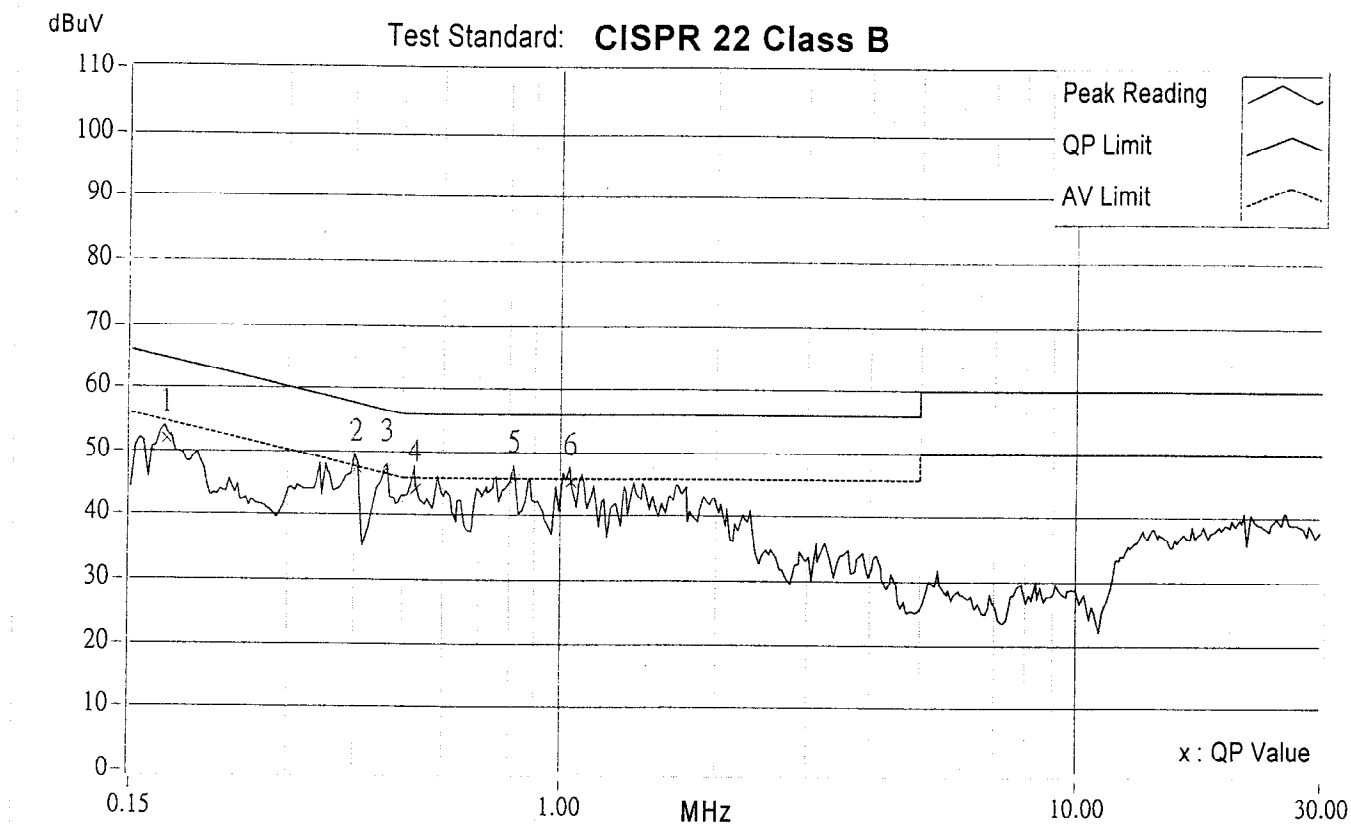
Location: Conduction 9

Date: 2002/2/7

Time: 15:54:34

Phase L1

*** This data is for evaluation purposes only. It cannot be used for EMC approvals ***

[illegible]

Brand / Model : PA-1900-05D

Test Mode :

Power Source : 110V/60Hz

Remark :

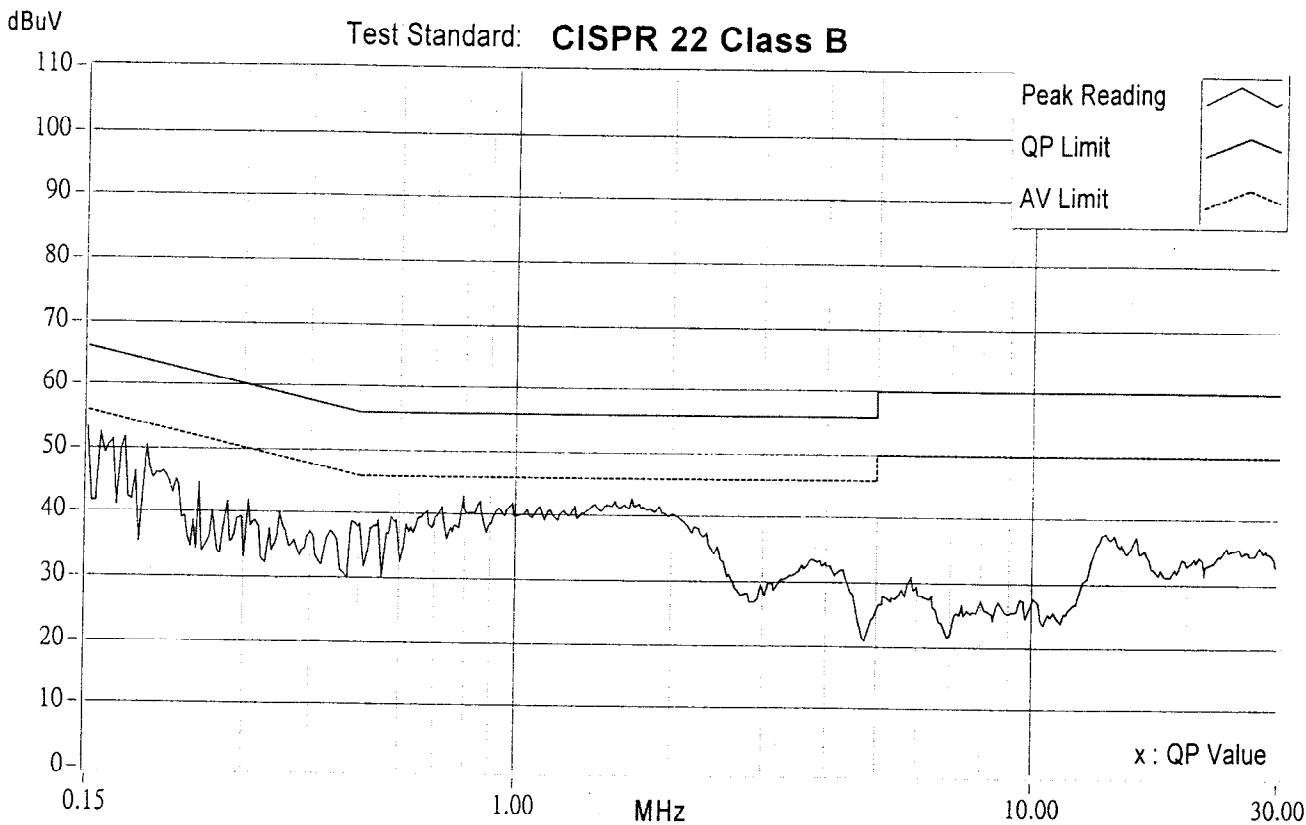
Tested by : WILLIAM

Date: 2002/2/7

Time: 16:00:21

Phase L1

*** This data is for evaluation purposes only. It cannot be used for EMC approvals ***

[illegible]

Linkou EMC Lab: 47 14th Lin, Chiapao Tsuen, Linkou, Taipei, Taiwan, R.O.C. Tel (02) 2605-2180 Fax (02) 2605-2943

Hsinchu EMC Lab: 81-1 Luliaokeng, 9th Lin, Wulung Tsuen, Chiunglin, Hsinchu, Taiwan, R.O.C. Tel (03) 593-5343 Fax (03) 5939342

Brand / Model : PA-1900-05D

Test Mode :

Power Source : 230V/50Hz

Remark :

Tested by : WILLIAM

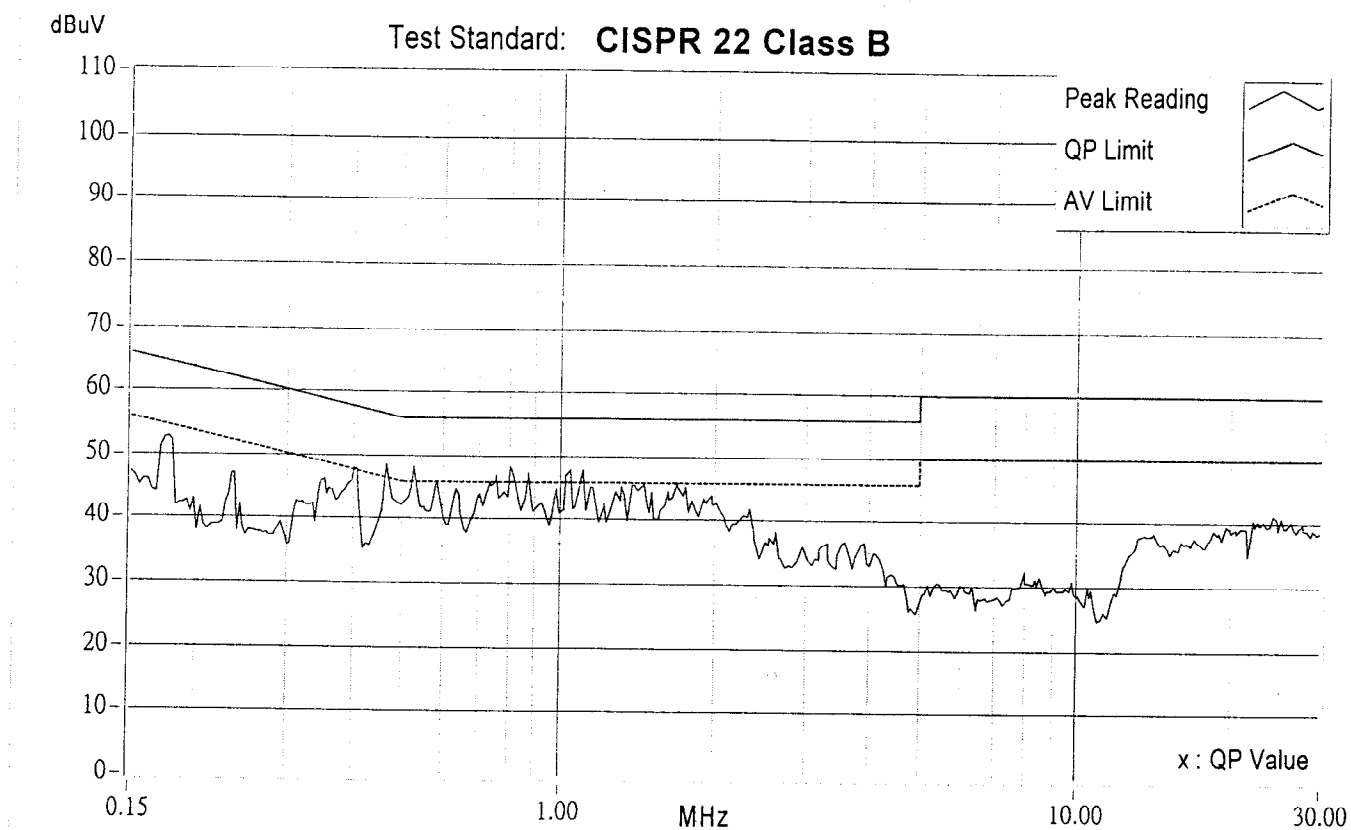
Location: Conduction 9

Date: 2002/2/7

Time: 15:58:10

Phase N

*** This data is for evaluation purposes only. It cannot be used for EMC approvals ***

[illegible]

Linkou EMC Lab: 47 14th Lin, Chiapao Tsuen, Linkou, Taipei, Taiwan, R.O.C. Tel (02) 2605-2180 Fax (02) 2605-2943
Hsinchu EMC Lab: 81-1 Luching Rd, Hsinchu, Taiwan, R.O.C. Tel (03) 571-2200 Fax (03) 571-2201

Hsinchu EMC Lab: 81-1 Luliaokeng, 9th Lin, Wulung Tsuen, Chiunglin, Hsinchu, Taiwan, R.O.C. . Tel (03) 593-5343 Fax (03) 5939342

Brand / Model : PA-1900-05D

Test Mode :

Power Source : 110V/60Hz

Remark :

Tested by : WILLIAM

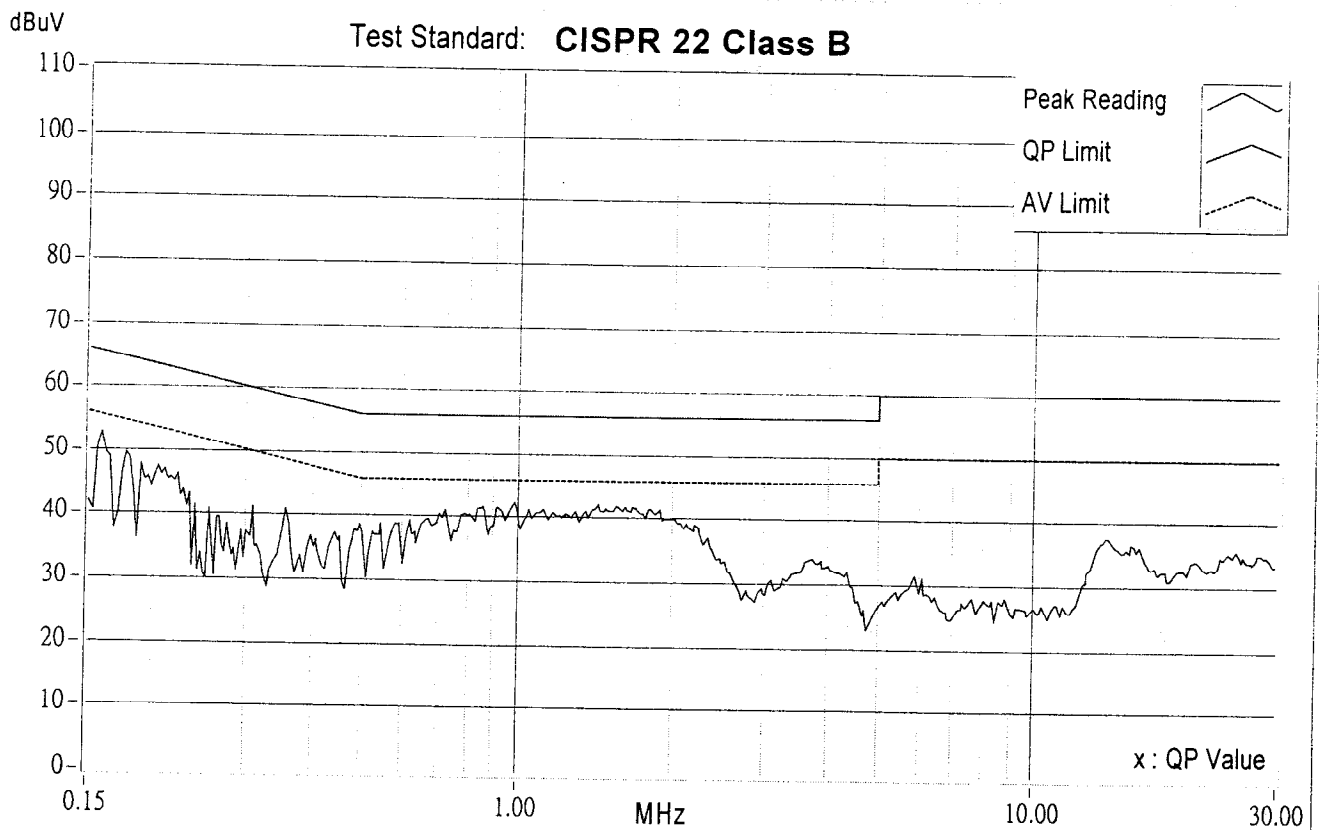
Location: Conduction 9

Date: 2002/2/7

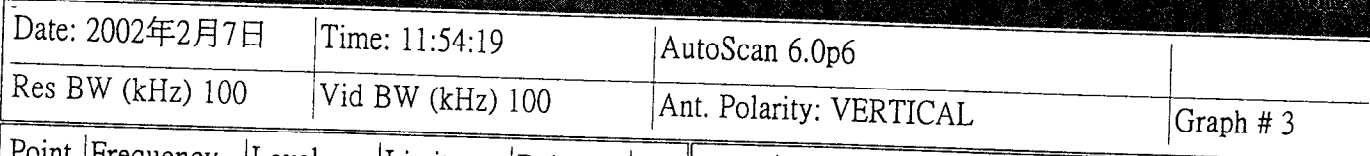
Time: 15:59:22

Phase N

*** This data is for evaluation purposes only. It cannot be used for EMC approvals ***

[illegible]

Brand / Model : PA-1900-05D L02
Remark : 110V@ NO.2
Tested by : DINO

Page 1

Advance Data Technology Corporation

誠信科技股份有限公司

Linkou Lab: No. 47, 14 Ling, Chai Pau Tsuen, Lin Kou Hsiang, Taipei, Taiwan, R.O.C.
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Tel:(03) 327-0910 Fax:(03) 327-0892

Tel:(03) 327-0910 Fax:(03) 327-0892

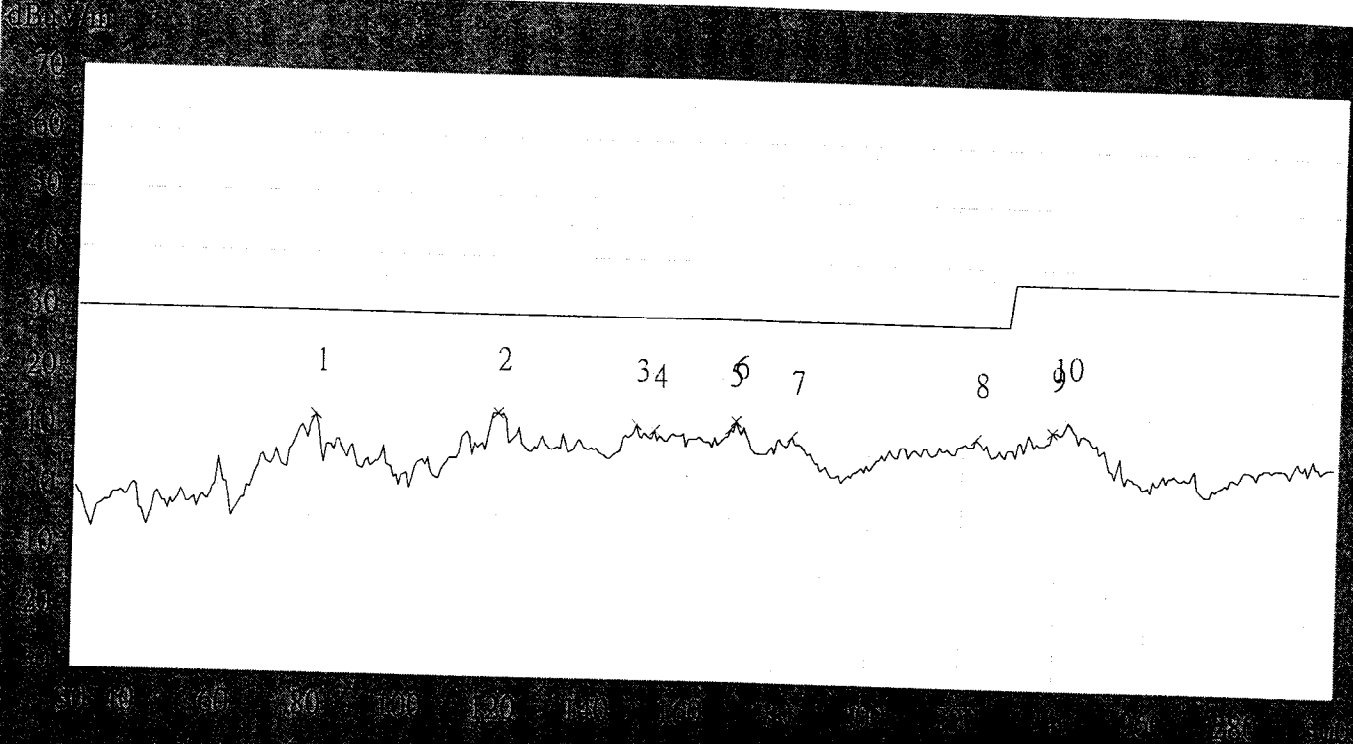
EN55022/CISPR 22/VCCI/CNS 13438 Class B Chamber 4
(3M Testing Chamber) - 1000 Hz

(3M Testing Chamber, This data is for evaluation purposes only),

Brand / Model : PA-1900-05D L02

Remark : 110V@ NO.2

Tested by :DINO



Date: 2002年2月7日

Time: 11:55:11

AutoScan 6.0p6

Res BW (kHz) 100

Vid BW (kHz) 100

Ant. Polarity: HORIZONTAL

Graph # 4

[illegible]

誠信科技股份有限公司

Tel:(02) 2605-2180 Fax:(02) 2602-2943

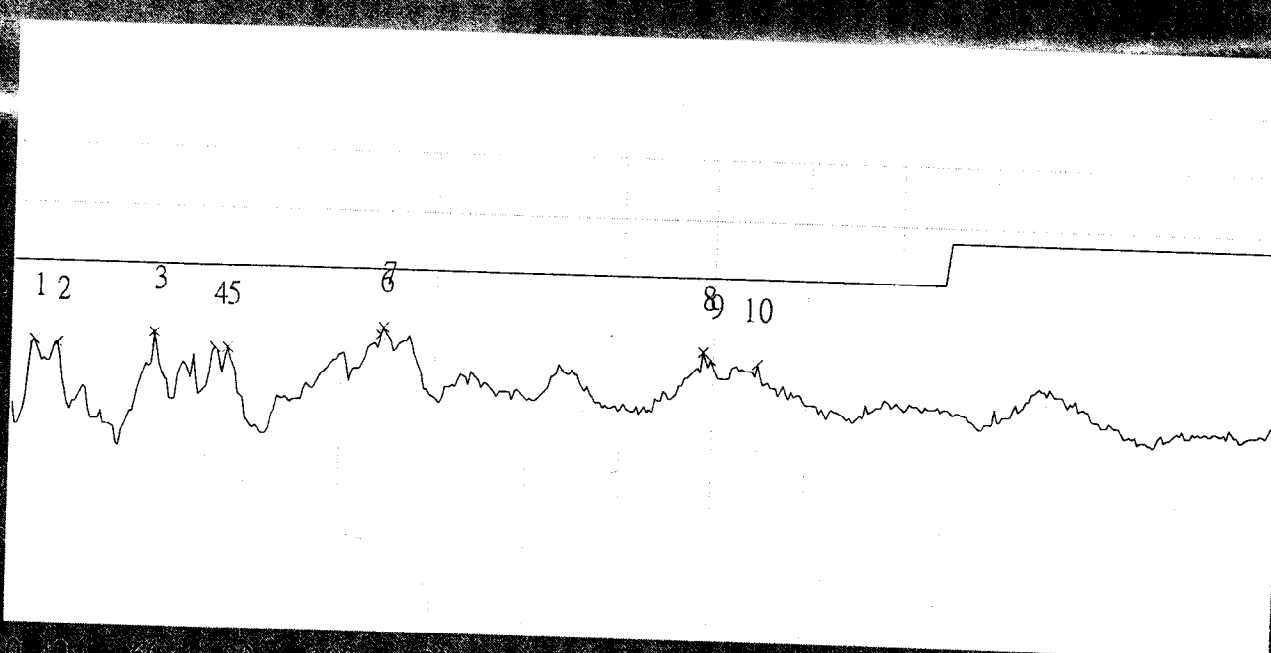
Tel:(035) 935-343 Fax:(035) 935-342

Tel:(03) 327-0910 Fax:(03) 327-0892

(3M Testing Chamber, This data is for evaluation purposes only),

Remark : 230V @ NO.2

Tested by :DINO



Time: 上午 11:51:32

AutoScan 6.0p6

Vid BW (kHz) 100

Ant. Polarity: VERTICAL

Graph # 3

[illegible]

Tel:(02) 2605-2180 Fax:(02) 2602-2943

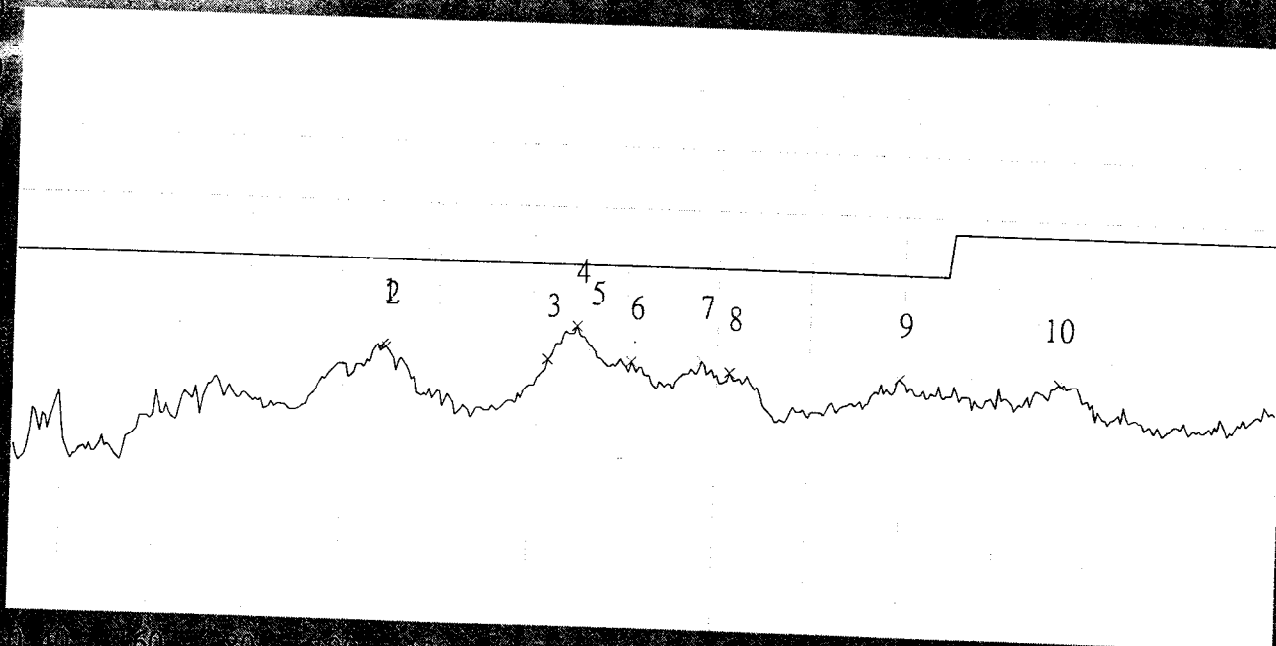
Tel:(035) 935-343 Fax:(035) 935-342

Tel:(03) 327-0910 Fax:(03) 327-0892

(3M Testing Chamber, This data is for evaluation purposes only).

Remark : 230V @ NO.2

Tested by :DINO



Res BW (kHz) 100	Vid BW (kHz) 100	Ant. Polarity: HORIZONTAL	Graph # 4
Point	Frequency	Level	Limit

[illegible]

PHASE GAIN TEST REPORT

MODEL NAME : PA-1900-05D

CUSTOMER : DELL

DATE : 01/23/2002

REV. : A

PREPARED BY : Dearbear Lai

APPROVED BY : *Jerry Hsu*



MODEL NAME : PA-1900-05D

Temperature : 25°C

STAGE: DVT2

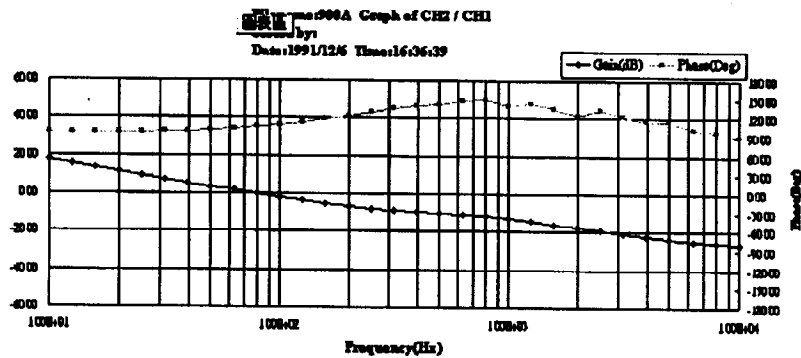
TEST ITEM : LOOP GAIN

TEST EQUIPMENT:

FREQUENCY RESPONSE ANALYZER NF 5060A NF ELECTRONIC INSTRUMENTS

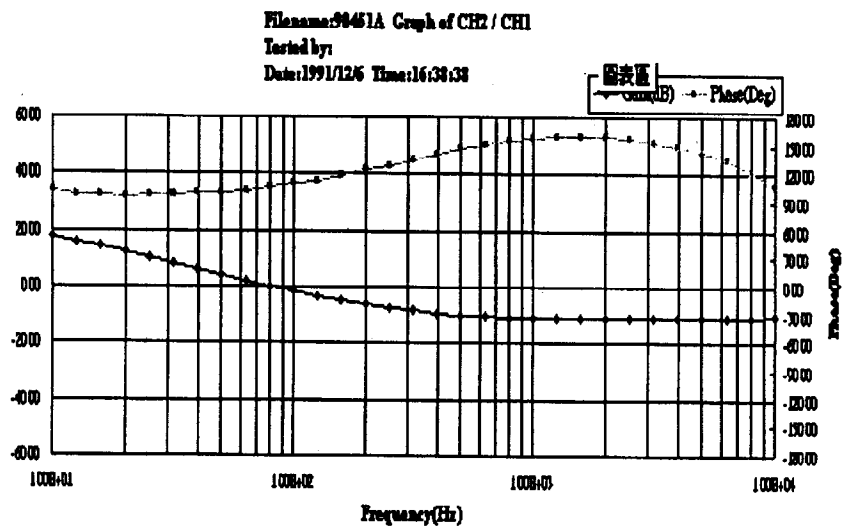
PA-1900-05D

Title: PA-1900-05D
FREQUENCY- 78.56 HZ PHASE- 106.2DEG.
Test Conditions: Line:90VAC Temp:25DEC
Load:LOAD- 8A



PA-1900-05D

Title: PA-1900-05D
FREQUENCY- 82.8 HZ PHASE- 106.6DEG.
Test Conditions: Line:90VAC Temp:25DEC
Load:LOAD- 451A





MODEL NAME : PA-1900-05D

Temperature : 25°C

STAGE: DVT2

TEST ITEM : LOOP GAIN

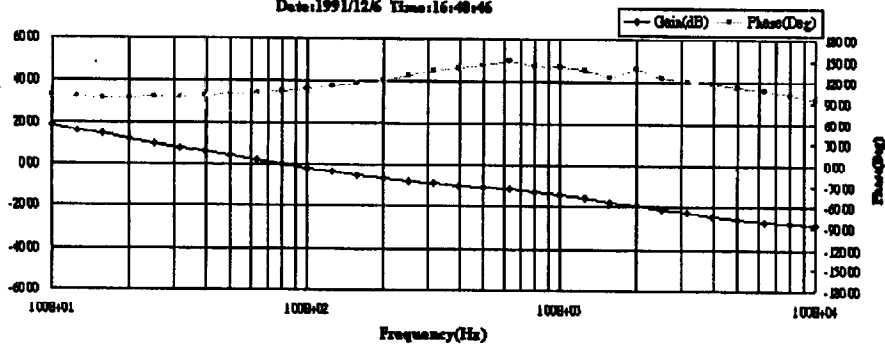
TEST EQUIPMENT:

FREQUENCY RESPONSE ANALYZER NF 5060A NF ELECTRONIC INSTRUMENTS

PA-1900-05D

Title: PA-1900-05D
FREQUENCY- 79.96HZ PHASE- 104.4DEG.
Test Conditions: Line:264VAC Temp:25DEG
Load:LOAD= 0A

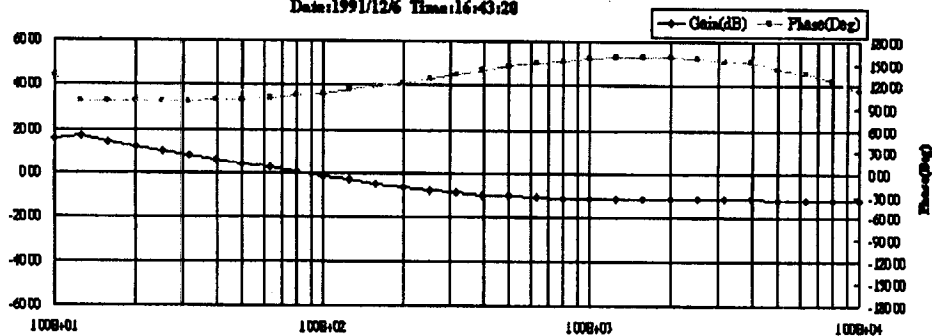
Filename:26400A Graph of CH2 / CH1
Tested by:
Date:1991/12/6 Time:16:40:46



PA-1900-05D

Title: PA-1900-05D
FREQUENCY- 84.68HZ PHASE- 106.5DEG.
Test Conditions: Line:264VAC Temp:25DEG
Load:LOAD= 4.51A

Filename:264401A Graph of CH2 / CH1
Tested by:
Date:1991/12/6 Time:16:43:20



RELIABILITY ENGINEERING REPORT

TO : DOC

DOC NO : 0201805
DATE : 01/17/2002

FROM : QRA RELIABILITY

SUBJECT : PA-1900-05D KEY COMPONENT STRESS & MTBF TEST REPORT.

DESCRIPTION :

1. 此份為 PA1900-05D KEY COMPONENT STRESS & MTBF TEST REPORT.

1.1 KEY COMPONENT STRESS TEST REPORT

JUDGE : OK

1.2. PREDITABLE MTBF : 115VAC = 148,130 Hours , Ambient : 25 °C
230VAC = 136,942 Hours , Ambient : 25 °C

3. 此份根據 PART LIST REV. E 完成 .

4. 請技資保留原稿存檔 .

敬會 設計工程師 : Deoben 1/17/02

設計部經理 : Jerry Hsu 1/17/02

PREPARED BY : 許文義 1/17/02 CHECKED BY : α APPROVED BY : 林廣揚 1/17/02

KEY COMPONENT STRESS (DERATING) TEST REPORT

MODEL NAME : PA-1900-05D

INPUT AC RANGE : 90VAC - 132VAC

- CONTAIN : • COMPONENT SPEC.
• COMPONENT VOLTAGE AND CURRENT TEST DATA
• COMPONENT TEMPERATURE RISE RECORD

JUDGE : OK

DESIGN ENGINEER : Dearben Fai 1/6/01

PREPARE : 許宏義 1/11/02

CHECK : 2

APPROVAL : 許廣揚 1/11/02



KEY COMPONENT STRESS TEST DATA

MODEL NO : PA-1900-05D

REV : E

DATE :01-11-2002

Page 1

RESISTOR				Component Spec.					Worst Case Stress in Test Data						
No.	LOCATION	TYPE	MAKER	VALUE	POWER	K	VOLT	TEMP.	V(Peak)		POWER		TEMP.		
					Watt				INPUT	APPLY	Watt	%	INPUT	APPLY	JUDGE
				OHMS	W		V	°C	VAC	V	W		VAC	40°C	
1	R003	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	132	58.35	3.405m	2.72	115	74.7	OK
2	R004	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	132	58.03	3.367m	2.69	115	74.7	OK
3	R005	R.CF	YAGEO	20K	0.100	0.85	50.00	125.0	132	1.38	95.225u	0.10	115	73.6	OK
4	R006	R.MF	YAGEO	499K	0.250	0.75	200.00	125.0	***	107.84	23.306m	9.32	115	76.4	OK
5	R007	R.MF	YAGEO	499K	0.250	0.75	200.00	125.0	***	107.84	23.306m	9.32	115	76.4	OK
6	R008	R.MF	YAGEO	11.5K	0.100	0.95	50.00	125.0	***	2.48	535.244u	0.54	115	70.8	OK
7	R009	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	132	48.16	2.319m	1.86	115	74.7	OK
8	R010	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	132	47.96	2.300m	1.84	115	74.7	OK
9	R011	R.MF	YAGEO	511K	0.100	0.90	50.00	125.0	132	18.06	637.992u	0.64	132	72.0	OK
10	R014	R.MO(S)	QUMAO	0.24	1.000	0.80	350.00	200.0	90	0.24	0.242	24.20	90	95.0	OK
11	R022	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	132	47.25	2.232m	1.79	115	74.7	OK
12	R023	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	132	46.45	2.157m	1.73	115	74.7	OK
13	R024	R.MF	YAGEO	590K	0.100	0.90	50.00	125.0	132	25.39	1.093m	1.09	115	72.6	OK
14	R050	R.MO(S)	QUMAO	100K	1.000	0.80	350.00	200.0	***	128.59	0.165	16.53	90	100.1	OK
15	R051	R.MO(S)	QUMAO	0.1	1.000	0.90	350.00	200.0	***	98.19m	96.404m	9.64	90	74.2	OK
16	R065	R.CF	YAGEO	15	0.125	0.85	150.00	125.0	132	0.20	2.681m	2.14	90	77.3	OK
17	R102	R.CF	YAGEO	47	0.125	1.00	150.00	125.0	***	0.31	2.032m	1.63	90	78.6	OK
18	R105	R.CF	YAGEO	10	0.100	1.00	50.00	125.0	90	3.28m	1.076u	0.00	90	77.5	OK

TEMP. = Temperature ; *** : 90VAC - 132VAC

AMBIENT TEMPERATURE : 40°C

POWER(TEST DATA; Watt; W) = APPLY * APPLY(TEST DATA; VOLT; V) / OHMS

EXAMPLE : (R105) Watt = .00328 * .00328 / 10 = 1.076uW

POWER(TEST DATA; %) = POWER(TEST DATA; Watt; W) / POWER(COMPONENT SPEC.; Watt; W) * 100%

EXAMPLE : (R105) POWER (%) = 1.076u / 0.100 * 100 (%) = 0.00%

VOLT(TEST DATA; APPLY; V) < VOLT(COMPONENT SPEC.; V)

TEMP.(TEST DATA; 40°C) < TEMP.(COMPONENT SPEC.; °C)

POWER(TEST DATA; Watt; W) < POWER(COMPONENT SPEC.; Watt; W) * K



KEY COMPONENT STRESS TEST DATA

MODEL NO : PA-1900-05D

REV : E

DATE :01-11-2002

Page 2

RESISTOR				Component Spec.					Worst Case Stress in Test Data						
No.	LOCATION	TYPE	MAKER	VALUE	POWER	K	VOLT	TEMP.	V(Peak)		POWER		TEMP.		
					Watt				INPUT	APPLY	Watt	%	INPUT	APPLY	JUDGE
				OHMS	W		V	°C	VAC	V	W		VAC	40°C	
19	R122	R.CF	YAGEO	47	0.125	0.85	150.00	125.0	***	0.41	3.589m	2.87	132	74.4	OK
20	R200	R.CF	YAGEO	47	0.250	0.85	200.00	125.0	***	0.15	507.619u	0.20	132	71.8	OK
21	R201	R.CF	YAGEO	47	0.250	0.85	200.00	125.0	***	0.15	502.636u	0.20	132	71.8	OK

TEMP. = Temperature ; *** : 90VAC - 132VAC

AMBIENT TEMPERATURE : 40°C

POWER(TEST DATA; Watt; W) = APPLY * APPLY(TEST DATA; VOLT; V) / OHMS

EXAMPLE : (R201) Watt = $0.15 * 0.15 / 47 = 502.636\mu\text{W}$

POWER(TEST DATA; %) = POWER(TEST DATA; Watt; W) / POWER(COMPONENT SPEC.; Watt; W) * 100%

EXAMPLE : (R201) POWER (%) = $502.636\mu / 0.250 * 100$ (%) = 0.20%

VOLT(TEST DATA; APPLY; V) < VOLT(COMPONENT SPEC.; V)

TEMP.(TEST DATA; 40°C) < TEMP.(COMPONENT SPEC.; °C)

POWER(TEST DATA; Watt; W) < POWER(COMPONENT SPEC.; Watt; W) * K



KEY COMPONENT STRESS TEST DATA

MODEL NO : PA-1900-05D

REV : E

DATE :01-11-2002

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CAPACITOR				Component Spec.						Worst Case Stress in Test Data										
No.	LOCATION	TYPE	MAKER	CAP.	VOLT	RIPPLE	F	T	TEMP.	V(Peak)			I(rms)					TEMP.		
				F	V	A			°C	INPUT	APPLY	%	INPUT	APPLY	FREQ.	I _r '	%	INPUT	APPLY	JUDGE
										VAC	V		VAC	A	Hz	A		VAC	40°C	
1	C010	ELE	NCC	10U	50	46.00m	1.80	1.75	105.0	132	11.88	23.8	132	19.71m	46000	6.26m	13.6	90	83.2	OK
2	C051	ELE	NCC	120U	400	0.70	1.50	1.75	105.0	132	225.00	56.3	90	1.20	46000	0.46	65.3	90	77.1	OK
3	C051	---	---	---	---	---	1.00	1.75	---	---	---	---	115	51.16u	120	---	---	---	---	---
4	C053	MON	AVX	3300P	500	---	---	---	125.0	132	179.69	35.9	---	---	---	---	---	132	96.4	OK
5	C054	ELE	RUBCO	22U	50	0.15	1.00	1.70	105.0	132	12.81	25.6	90	16.98m	46000	9.99m	6.8	90	80.1	OK
6	C122	MON	SNCRA	220P	100	---	---	---	125.0	132	36.88	36.9	---	---	---	---	---	132	74.4	OK
7	C200	MON	SNCRA	220P	200	---	---	---	125.0	132	63.13	31.6	---	---	---	---	---	132	81.8	OK
8	C204	ELE	RUBCO	1000U	25	2.36	1.00	1.70	105.0	132	20.00	80.0	115	1.88	46000	1.10	46.8	90	82.4	OK
9	C205	ELE	RUBCO	470U	25	1.21	1.00	1.70	105.0	132	20.00	80.0	132	0.85	46000	0.50	41.2	90	80.5	OK
10	C206	ELE	RUBCO	330U	25	0.84	1.00	1.70	105.0	132	20.00	80.0	115	0.49	46000	0.29	34.3	115	77.9	OK

TEMP. = Temperature ; F = Frequency Multipliers ; T= Temperature Multipliers ;
 AMBIENT TEMPERATURE : 40°C ; ***: 90VAC - 132VAC

ELE (Cap. < 100uF, 400V)

$I_r' = \text{CURRENT}(\text{TEST DATA; APPLY; A}) / (F * T)$

EXAMPLE : (C206) $I_r' = 0.49 / (1.00 * 1.70) = 0.29A$

MON, DIS, MEX, MEF, PEI

$\text{VOLT}(\text{TEST DATA; APPLY; V}) < \text{VOLT}(\text{COMPONENT SPEC.; V}) * 90\%$

$\text{TEMP.}(\text{TEST DATA; APPLY; } 40^\circ\text{C}) < \text{TEMP.}(\text{COMPONENT SPEC.; } ^\circ\text{C})$

ELE

$\text{VOLT}(\text{TEST DATA; APPLY; V}) < \text{VOLT}(\text{COMPONENT SPEC.; V}) * 96\%$ (RATED VOLTAGE ≥ 100 VOLT)

$\text{VOLT}(\text{TEST DATA; APPLY; V}) < \text{VOLT}(\text{COMPONENT SPEC.; V}) * 85\%$ (RATED VOLTAGE < 100 VOLT)

$\text{TEMP.}(\text{TEST DATA; APPLY; } 40^\circ\text{C}) < \text{TEMP.}(\text{COMPONENT SPEC.; } ^\circ\text{C})$

$\text{CURRENT}(\text{TEST DATA; } I_r'; A) < \text{RIPPLE}(\text{COMPONENT SPEC.; RIPPLE; A})$

RIPPLE : Ripple Current ; FREQ. = Frequency

ELE (Cap. $\geq 100uF$, 400V)

I_1 (low FREQ.) = CURRENT (TEST DATA; APPLY; A) / F1

I_2 (hiigh FREQ.) = CURRENT (TEST DATA; APPLY; A) / F

$I_r' = \sqrt{I_1^2 + I_2^2} / T$

EXAMPLE : (C051) I_1 (120Hz) = $5.082E-05 / 1.001 = 5.076923E-05A$

I_2 (46000Hz) = $1.2 / 1.5 = .8A$

$I_r' = \sqrt{5.076923E-05^2 + .8^2} / 1.75 = .4571429A$



KEY COMPONENT STRESS TEST DATA

MODEL NO : PA-1900-05D

REV : E

DATE :01-11-2002

Page 4

DIODE				Component Spec.						Worst Case Stress in Test Data									
No.	LOCATION	P/N	MAKER	Vr	If(av)	K	Rth(j-c)	Vf	TEMP.	Vr(Peak)			If(av)			TEMP.			
										INPUT	APPLY	%	INPUT	APPLY	%	INPUT	APPLY	Tj	JUDGE
				V	A		°C/W	V	°C	VAC	V		VAC	A		VAC	40°C	40°C	
1	D003	MUR460	GS	600	4.00	0.60	28.0	1.0	175.0	132	225.00	37.5	115	1.11	27.8	90	64.9	97.5	OK
2	D050	2KBP08M	GS	800	2.00	0.60	11.0	1.1	165.0	132	196.88	24.6	90	0.96	47.9	90	87.0	98.6	OK
3	D051	BAS21	PHLIP	200	0.20	1.00	500.0	1.3	150.0	115	51.25	25.6	132	9.09m	4.5	132	74.4	80.1	OK
4	D052	1N4007	GS	1000	1.00	0.80	25.0	1.1	175.0	132	350.00	35.0	132	32.25m	3.2	90	88.8	89.7	OK

TEMP. = Temperature ; Vr = Max. Forward Voltage; *** : 90VAC - 132VAC

AMBIENT TEMPERATURE : 40°C

Rth(j-c) = Thermal Resistance, Junction to case

$T_j = V_f(\text{COMPONENT SPEC.; V}) * I_f(\text{av})(\text{TEST DATA; APPLY; A}) * R_{th(j-c)} + \text{TEMP.}(\text{TEST DATA; APPLY; } 40^{\circ}\text{C})$

EXAMPLE : (D052) $T_j = 1.1 * .03225 * 25.0 + 88.8 = 89.7^{\circ}\text{C}$

$V_f(\text{TEST DATA; APPLY; V}) < V_f(\text{COMPONENT SPEC.; V}) * 95\%$

$I_f(\text{av})(\text{TEST DATA; APPLY; A}) < I_f(\text{av})(\text{COMPONENT SPEC.; A}) * K$

$T_j(\text{TEST DATA; } 40^{\circ}\text{C}) < \text{TEMP.}(\text{COMPONENT SPEC.; } ^{\circ}\text{C})$



KEY COMPONENT STRESS TEST DATA

MODEL NO : PA-1900-05D

REV : E

DATE :01-11-2002

Page 5

TRANSISTOR				Component Spec.				Worst Case Stress in Test Data									
No.	LOCATION	P/N	MAKER	Vce	Ic	Rth(j-c)	TEMP.	V(Peak)			I(rms)			TEMP.			
				V	A	°C/W	°C	VAC	V	%	INPUT	APPLY	%	INPUT	APPLY	Tj	JUDGE
				V	A	°C/W	°C	VAC	V		VAC	A		VAC	40°C	40°C	
1	Q005	KST4403	SAMSU	40.0	0.60	357.0	150.0	115	14.06	35.2	132	328.1u	0.05	132	82.00	83.5	OK
2	Q065	MMST4401	ROHM	40.0	0.60	625.0	150.0	90	25.94	64.8	115	5.5m	0.92	132	83.60	107.3	OK
3	Q102	MMST4401	ROHM	40.0	0.60	625.0	150.0	115	1.77	4.4	115	3.4m	0.56	132	80.30	82.0	OK
4	Q203	KST4403	SAMSU	40.0	0.60	357.0	150.0	132	8.13	20.3	90	11.9m	1.98	132	92.00	93.8	OK
5	Q205	KST4403	SAMSU	40.0	0.60	357.0	150.0	132	12.50	31.3	132	4.6m	0.76	115	81.60	93.9	OK
6	Q206	MMST4401	ROHM	40.0	0.60	625.0	150.0	90	35.00	87.5	90	10.9m	1.82	132	88.50	89.3	OK

TEMP. = Temperature ; *** : 90VAC - 132VAC

AMBIENT TEMPERATURE : 40°C

Rth(j-c) = Thermal Resistance , Junction to case

$T_j = V_{ce}(\text{TEST DATA; APPLY; } V_{rms}) * I_c(\text{TEST DATA; APPLY; A}) * R_{th(j-c)} + \text{TEMP.}(\text{TEST DATA; APPLY; } 40^{\circ}\text{C})$

EXAMPLE : (Q206) $T_j = .11741 * .01093 * 625.0 + 88.50 = 89.3^{\circ}\text{C}$

$V_{ce}(\text{TEST DATA; APPLY; V}) < V_{ce}(\text{COMPONENT SPEC.; V}) * 95\%$

$I_c(\text{TEST DATA; APPLY; A}) < I_c(\text{COMPONENT SPEC.; A}) * 80\%$

$T_j(\text{TEST DATA; } 40^{\circ}\text{C}) < \text{TEMP.}(\text{COMPONENT SPEC.; } ^{\circ}\text{C})$



KEY COMPONENT STRESS TEST DATA

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IC				Component Spec.				Worst Case Stress in Test Data										
No.	LOCATION	P/N	MAKER	V	I	TEMP.	Rth(j-C)	V(Peak)			Vout	I(rms)			TEMP.			JUDGE
								INPUT	APPLY	%	V	INPUT	APPLY	%	INPUT	APPLY	Tj	
				V	A	°C	°C/W	VAC	V			VAC	A		VAC	40°C	40°C	
1	IC1	L6561D	STM	18	30.00m	150.0	150.0	132	12.66	70.33	-----	132	18.30m	61.00	132	73.4	85.4	OK
2	IC100	LTA201P	PHILIP	20	62.50m	150.0	100.0	90	14.06	70.30	-----	115	15.61m	24.98	132	81.9	92.3	OK
3	IC302	TSM103AID	STM	36	20.00m	150.0	175.0	132	20.63	57.31	-----	115	466.00u	2.33	132	86.4	88.0	OK

TEMP. = Temperature ; *** : 90VAC - 132VAC
 AMBIENT TEMPERATURE : 40°C

(1) EXAMPLE : NONE

$$T_j = [V_{in}(\text{TEST DATA; APPLY; } V_{rms}) - V_{out}] * I(\text{TEST DATA; APPLY; A}) * R_{th(j-c)} + TEMP.(\text{TEST DATA; APPLY; } 40^{\circ}\text{C})$$

(2) IC1,IC100,IC302

$$T_j = V(\text{TEST DATA; APPLY; } V_{rms}) * I(\text{TEST DATA; APPLY; A}) * R_{th(j-c)} + TEMP.(\text{TEST DATA; APPLY; } 40^{\circ}\text{C})$$

$$\text{EXAMPLE:}(\text{IC302}) T_j = 20.22 * .000466 * 175.0 + 86.4 = 88.0^{\circ}\text{C}$$

$$V_{cc}(\text{TEST DATA; APPLY; V}) < V_{cc}(\text{COMPONENT SPEC.; V}) * 95\%$$

$$I_c(\text{TEST DATA; APPLY; A}) < I_c(\text{COMPONENT SPEC.; A}) * 80\%$$

$$T_j(\text{TEST DATA; APPLY; } 40^{\circ}\text{C}) < TEMP.(\text{COMPONENT SPEC.; } ^{\circ}\text{C})$$



KEY COMPONENT STRESS TEST DATA

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MOSFET				Component Spec.					Worst Case Stress in Test Data													JUDGE
No.	LOCATION	P/N	MAKER	Vds	Vgs	Id	Rth(j-c)	TEMP.	Vds(Peak)			Vgs(Peak)			Id(rms)			P	TEMP.			
									INPUT	APPLY	%	INPUT	APPLY	%	INPUT	APPLY	%		INPUT	APPLY	Tj	
				V	V	A	℃/W	℃	VAC	V		VAC	V		VAC	A		W	VAC	40℃	40℃	
1	Q001	2SK2842	TOSHB	500	30.0	12.0	3.1	150.0	132	256.3	51.3	132	12.19	40.6	90	1.20	10.00	0.75	90	89.1	91.4	OK
2	Q050	2SK2843	TOSHB	600	30.0	10.0	2.8	150.0	132	418.8	69.8	132	11.41	38.0	90	0.97	9.73	0.51	90	102.1	103.5	OK
3	Q200	STP40NF10L	STM	100	15.0	40.0	1.0	175.0	132	62.5	62.5	132	13.13	87.5	90	3.33	8.32	0.31	90	77.0	77.3	OK
4	Q201	STP40NF10L	STM	100	15.0	40.0	1.0	175.0	132	63.1	63.1	132	13.25	88.3	90	3.33	8.32	0.31	90	76.2	76.5	OK

TEMP. = Temperature ; *** : 90VAC - 132VAC

AMBIENT TEMPERATURE : 40°C

Rth(j-c) = Thermal Resistance , Junction to case

$T_j = P(\text{TEST DATA; W}) * R_{th(j-c)} + TEMP.(\text{TEST DATA; APPLY; } 40^{\circ}\text{C})$

EXAMPLE : (Q201) $T_j = 0.31 * 1.0 + 76.2 = 76.5^{\circ}\text{C}$

$V_{ds}(\text{TEST DATA; APPLY; V}) < V_{ds}(\text{COMPONENT SPEC.; V}) * 95\%$

$I_d(\text{TEST DATA; APPLY; A}) < I_d(\text{COMPONENT SPEC.; A}) * 80\%$

$T_j(\text{TEST DATA; APPLY; } 40^{\circ}\text{C}) < TEMP.(\text{COMPONENT SPEC.; } ^{\circ}\text{C})$

$V_{gs}(\text{TEST DATA; APPLY; V}) < V_{gs}(\text{COMPONENT SPEC.; V}) * 95\%$

KEY COMPONENT STRESS TEST DATA

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CHOKE		Component Spec.	Worst Case Stress in Test Data		
No.	LOCATION	TEMP.(WINDING)	TEMP.		
			INPUT	APPLY	JUDGE
		°C	VAC	40°C	
1	T050	130	90	110.9	OK
2	L001	130	90	78.2	OK
3	L002	130	132	96.0	OK
4	L003	130	90	92.7	OK
5	L010	130	90	87.7	OK
6	L200	130	90	96.5	OK

TEMP. = Temperature ; *** : 90VAC - 132VAC
 AMBIENT TEMPERATURE : 40°C

TEMP.(TEST DATA; APPLY; 40°C) < TEMP.(COMPONENT SPEC.; °C)



KEY COMPONENT STRESS TEST DATA

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PHOTO-COUPLE				Component Spec.					Worst Case Stress in Test Data										
No.	LOCATION	P/N	MAKER	Vce(Vr)	Ic(If)	P	TEMP.	Rth(j-c)	Vr(Peak)			Ic(If)			P	TEMP.			
									INPUT	APPLY	%	INPUT	APPLY	%		INPUT	APPLY	Tj	JUDGE
				V	A	W	°C	°C/W	VAC	V		VAC	A		W	VAC	40°C	40°C	
1	PC300	LTV-817M-PRA	LITON	35.0	50.0m	0.15	125.0	500.0	115	12.030	34.4	90	1.79m	3.6	20.42m	115	91.5	101.7	OK
2	PC3002	LTV-817M-PRA	LITON	6.0	50.0m	70.00m	125.0	500.0	132	0.620	10.3	90	731.30u	1.5	438.78u	115	91.5	91.7	OK
3	PC301	LTV-817M-PRA	LITON	35.0	50.0m	0.15	125.0	500.0	132	12.660	36.2	90	1.37m	2.7	16.88m	90	89.6	98.0	OK
4	PC3012	LTV-817M-PRA	LITON	6.0	50.0m	70.00m	125.0	500.0	132	15.600m	0.3	90	931.00u	1.9	1.69u	90	89.6	89.6	OK

TEMP. = Temperature ; *** : 90VAC - 132VAC

AMBIENT TEMPERATURE : 40°C

$T_j = V_{ce}(V_r)(\text{TEST DATA; APPLY; } V_{rms}) * I_c(I_f)(\text{TEST DATA; APPLY; A}) * R_{th}(j-c) + \text{TEMP.}(\text{TEST DATA; APPLY; } 40^{\circ}\text{C})$

EXAMPLE : (PC3012) $T_j = .00181 * .000931 * 500.0 + 89.6 = 89.6^{\circ}\text{C}$

$V_{ce}(V_r)(\text{TEST DATA; APPLY; V}) < V_{ce}(V_r)(\text{COMPONENT SPEC.; V}) * 95\%$

$I_c(I_f)(\text{TEST DATA; APPLY; A}) < I_c(I_f)(\text{COMPONENT SPEC.; A}) * 80\%$

$P(\text{TEST DATA; APPLY; W}) < P(\text{COMPONENT SPEC.; W})$

$T_j(\text{TEST DATA; } 40^{\circ}\text{C}) < \text{TEMP.}(\text{COMPONENT SPEC.; } ^{\circ}\text{C})$

KEY COMPONENT STRESS (DERATING) TEST REPORT

MODEL NAME : PA-1900-05D

INPUT AC RANGE : 180VAC - 265VAC

- CONTAIN : • COMPONENT SPEC.
• COMPONENT VOLTAGE AND CURRENT TEST DATA
• COMPONENT TEMPERATURE RISE RECORD

JUDGE : OK

DESIGN ENGINEER Damber 1/17/02

PREPARE : 許家義 1/11/02

CHECK : α

APPROVAL : 林廣瑞 1/11/02



KEY COMPONENT STRESS TEST DATA

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RESISTOR				Component Spec.					Worst Case Stress in Test Data						
No.	LOCATION	TYPE	MAKER	VALUE	POWER	K	VOLT	TEMP.	V(Peak)		POWER		TEMP.		
					Watt				INPUT	APPLY	Watt	%	INPUT	APPLY	JUDGE
				OHMS	W		V	°C	VAC	V	W		VAC	40°C	
1	R003	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	265	126.45	15.991m	12.79	265	77.8	OK
2	R004	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	265	112.87	12.741m	10.19	265	77.8	OK
3	R005	R.CF	YAGEO	20K	0.100	0.85	50.00	125.0	265	2.78	386.900u	0.39	230	76.3	OK
4	R006	R.MF	YAGEO	499K	0.250	0.75	200.00	125.0	***	194.82	76.065m	30.43	230	83.7	OK
5	R007	R.MF	YAGEO	499K	0.250	0.75	200.00	125.0	***	194.82	76.065m	30.43	230	83.7	OK
6	R008	R.MF	YAGEO	11.5K	0.100	0.95	50.00	125.0	***	4.49	1.753m	1.75	230	72.2	OK
7	R009	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	265	98.85	9.772m	7.82	265	77.8	OK
8	R010	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	265	88.56	7.843m	6.27	265	77.8	OK
9	R011	R.MF	YAGEO	511K	0.100	0.90	50.00	125.0	265	38.49	2.900m	2.90	230	74.0	OK
10	R014	R.MO(S)	QUMAO	0.24	1.000	0.80	350.00	200.0	180	0.12	60.180m	6.02	180	87.1	OK
11	R022	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	265	98.76	9.753m	7.80	265	77.8	OK
12	R023	R.CF	YAGEO	1M	0.125	0.85	150.00	125.0	265	100.44	10.088m	8.07	265	77.8	OK
13	R024	R.MF	YAGEO	590K	0.100	0.90	50.00	125.0	265	36.36	2.241m	2.24	230	74.8	OK
14	R050	R.MO(S)	QUMAO	100K	1.000	0.80	350.00	200.0	***	128.56	0.165	16.53	265	98.8	OK
15	R051	R.MO(S)	QUMAO	0.1	1.000	0.90	350.00	200.0	180	71.53m	51.166m	5.12	230	68.1	OK
16	R065	R.CF	YAGEO	15	0.125	0.85	150.00	125.0	265	0.26	4.510m	3.61	230	72.2	OK
17	R102	R.CF	YAGEO	47	0.125	1.00	150.00	125.0	265	0.35	2.636m	2.11	180	75.5	OK
18	R105	R.CF	YAGEO	10	0.100	1.00	50.00	125.0	180	3.46m	1.197u	0.00	180	75.4	OK

TEMP. = Temperature ; *** : 180VAC - 265VAC

AMBIENT TEMPERATURE : 40°C

POWER(TEST DATA; Watt; W) = APPLY * APPLY(TEST DATA; VOLT; V) / OHMS

EXAMPLE : (R105) Watt = .00346 * .00346 / 10 = 1.197uW

POWER(TEST DATA; %) = POWER(TEST DATA; Watt; W) / POWER(COMPONENT SPEC.; Watt; W) * 100%

EXAMPLE : (R105) POWER (%) = 1.197u / 0.100 * 100 (%) = 0.00%

VOLT(TEST DATA; APPLY; V) < VOLT(COMPONENT SPEC.; V)

TEMP.(TEST DATA; 40°C) < TEMP.(COMPONENT SPEC.; °C)

POWER(TEST DATA; Watt; W) < POWER(COMPONENT SPEC.; Watt; W) * K



KEY COMPONENT STRESS TEST DATA

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RESISTOR				Component Spec.					Worst Case Stress in Test Data						
No.	LOCATION	TYPE	MAKER	VALUE	POWER	K	VOLT	TEMP.	V(Peak)		POWER		TEMP.		
					Watt				INPUT	APPLY	Watt	%	INPUT	APPLY	JUDGE
				OHMS	W		V	°C	VAC	V	W		VAC	40°C	
19	R122	R.CF	YAGEO	47	0.125	0.85	150.00	125.0	230	0.57	6.858m	5.49	230	76.7	OK
20	R200	R.CF	YAGEO	47	0.250	0.85	200.00	125.0	***	0.42	3.814m	1.53	230	74.7	OK
21	R201	R.CF	YAGEO	47	0.250	0.85	200.00	125.0	***	0.42	3.759m	1.50	230	74.7	OK

TEMP. = Temperature ; *** : 180VAC - 265VAC

AMBIENT TEMPERATURE : 40°C

POWER(TEST DATA; Watt; W) = APPLY * APPLY(TEST DATA; VOLT; V) / OHMS

EXAMPLE : (R201) Watt = $0.42 * 0.42 / 47 = .003759$ W

POWER(TEST DATA; %) = POWER(TEST DATA; Watt; W) / POWER(COMPONENT SPEC.; Watt; W) * 100%

EXAMPLE : (R201) POWER (%) = $.003759 / 0.250 * 100$ (%) = 1.50%

VOLT(TEST DATA; APPLY; V) < VOLT(COMPONENT SPEC.; V)

TEMP(TEST DATA; 40°C) < TEMP(COMPONENT SPEC.; °C)

POWER(TEST DATA; Watt; W) < POWER(COMPONENT SPEC.; Watt; W) * K



KEY COMPONENT STRESS TEST DATA

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CAPACITOR				Component Spec.						Worst Case Stress in Test Data										
No.	LOCATION	TYPE	MAKER	CAP.	VOLT	RIPPLE	F	T	TEMP.	V(Peak)			I(rms)					TEMP.		
				F	V	A			°C	INPUT	APPLY	%	INPUT	APPLY	FREQ.	I _r '	%	INPUT	APPLY	JUDGE
				F	V	A			°C	VAC	V		VAC	A	Hz	A		VAC	40°C	
1	C010	ELE	NCC	10U	50	46.00m	1.80	1.75	105.0	265	11.88	23.8	230	27.01m	46000	8.57m	18.6	180	80.1	OK
2	C051	ELE	NCC	120U	400	0.70	1.50	1.75	105.0	265	383.75	95.9	180	0.88	46000	0.33	47.7	230	72.6	OK
3	C051	---	---	---	---	---	1.00	1.75	---	---	---	---	180	50.78u	120	---	---	---	---	---
4	C053	MON	AVX	3300P	500	---	---	---	125.0	230	173.44	34.7	---	---	---	---	---	230	98.9	OK
5	C054	ELE	RUBCO	22U	50	0.15	1.00	1.70	105.0	265	12.81	25.6	230	18.43m	46000	10.84m	7.4	230	79.6	OK
6	C122	MON	SNCRA	220P	100	---	---	---	125.0	265	35.94	35.9	---	---	---	---	---	230	76.7	OK
7	C200	MON	SNCRA	220P	200	---	---	---	125.0	265	96.25	48.1	---	---	---	---	---	230	84.7	OK
8	C204	ELE	RUBCO	1000U	25	2.36	1.00	1.70	105.0	265	20.00	80.0	230	1.53	46000	0.90	38.2	265	79.7	OK
9	C205	ELE	RUBCO	470U	25	1.21	1.00	1.70	105.0	265	20.00	80.0	180	0.69	46000	0.41	33.6	180	78.9	OK
10	C206	ELE	RUBCO	330U	25	0.84	1.00	1.70	105.0	265	20.00	80.0	180	0.40	46000	0.24	28.3	265	78.2	OK

TEMP. = Temperature ; F = Frequency Multipliers ; T= Temperature Multipliers ;

RIPPLE : Ripple Current ; FREQ. = Frequency

AMBIENT TEMPERATURE : 40°C ; *** : 180VAC - 265VAC

ELE (Cap. < 100uF, 400V)

I_r' = CURRENT (TEST DATA; APPLY; A) / (F * T)

EXAMPLE : (C206) I_r' = 0.40 / (1.00 * 1.70) = 0.24A

ELE (Cap. ≥ 100uF, 400V)

I₁ (low FREQ.) = CURRENT (TEST DATA; APPLY; A) / F₁

I₂ (hiigh FREQ.) = CURRENT (TEST DATA; APPLY; A) / F

I_r' = $\sqrt{I_1^2 + I_2^2} / T$

EXAMPLE : (C051) I₁ (120Hz) = 5.078E-05 / 1.001 = 5.072927E-05A

I₂ (46000Hz) = .8763 / 1.5 = .5842A

I_r' = $\sqrt{5.072927E-05^2 + .5842^2} / 1.75 = .3338286A$

MON, DIS, MEX, MEF, PEI

VOLT (TEST DATA; APPLY; V) < VOLT (COMPONENT SPEC.; V) * 90%

TEMP. (TEST DATA; APPLY; 40°C) < TEMP. (COMPONENT SPEC.; °C)

ELE

VOLT (TEST DATA; APPLY; V) < VOLT (COMPONENT SPEC.; V) * 96% (RATED VOLTAGE ≥ 100 VOLT)

VOLT (TEST DATA; APPLY; V) < VOLT (COMPONENT SPEC.; V) * 85% (RATED VOLTAGE < 100 VOLT)

TEMP. (TEST DATA; APPLY; 40°C) < TEMP. (COMPONENT SPEC.; °C)

CURRENT (TEST DATA; I_r'; A) < RIPPLE (COMPONENT SPEC.; RIPPLE; A)



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DIODE				Component Spec.						Worst Case Stress in Test Data									
No.	LOCATION	P/N	MAKER	Vr	If(av)	K	Rth(j-c)	Vf	TEMP.	Vr(Peak)			If(av)			TEMP.			
										INPUT	APPLY	%	INPUT	APPLY	%	INPUT	APPLY	Tj	JUDGE
				V	A		°C/W	V	°C	VAC	V		VAC	A		VAC	40°C	40°C	
1	D003	MUR460	GS	600	4.00	0.60	28.0	1.0	175.0	265	376.80	62.8	265	0.93	23.2	265	60.8	88.1	OK
2	D050	2KBP08M	GS	800	2.00	0.60	11.0	1.1	165.0	265	383.63	48.0	180	0.43	21.7	180	76.3	81.6	OK
3	D051	BAS21	PHLIP	200	0.20	1.00	500.0	1.3	150.0	265	90.63	45.3	230	12.79m	6.4	265	76.5	84.5	OK
4	D052	1N4007	GS	1000	1.00	0.80	25.0	1.1	175.0	230	518.75	51.9	180	26.12m	2.6	265	83.6	84.3	OK

TEMP. = Temperature ; Vr = Max. Forward Voltage; *** : 180VAC - 265VAC

AMBIENT TEMPERATURE : 40°C

Rth(j-c) = Thermal Resistance , Junction to case

$T_j = V_f(\text{COMPONENT SPEC.}; V) * I_f(\text{av})(\text{TEST DATA}; \text{APPLY}; A) * R_{th}(j-c) + \text{TEMP.}(\text{TEST DATA}; \text{APPLY}; 40^\circ\text{C})$

EXAMPLE : (D052) $T_j = 1.1 * .02612 * 25.0 + 83.6 = 84.3^\circ\text{C}$

$V_f(\text{TEST DATA}; \text{APPLY}; V) < V_f(\text{COMPONENT SPEC.}; V) * 95\%$

$I_f(\text{av})(\text{TEST DATA}; \text{APPLY}; A) < I_f(\text{av})(\text{COMPONENT SPEC.}; A) * K$

$T_j(\text{TEST DATA}; 40^\circ\text{C}) < \text{TEMP.}(\text{COMPONENT SPEC.}; ^\circ\text{C})$



KEY COMPONENT STRESS TEST DATA

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TRANSISTOR				Component Spec.				Worst Case Stress in Test Data									
No.	LOCATION	P/N	MAKER	Vce	Ic	Rth(j-c)	TEMP.	V(Peak)			I(rms)			TEMP.			
				V	A	°C/W	°C	VAC	V	%	INPUT	APPLY	%	INPUT	APPLY	Tj	JUDGE
				V	A	°C/W	°C	VAC	V		VAC	A		VAC	40°C	40°C	
1	Q005	KST4403	SAMSU	40.0	0.60	357.0	150.0	265	14.53	36.3	230	178.2u	0.03	180	83.60	84.4	OK
2	Q065	MMST4401	ROHM	40.0	0.60	625.0	150.0	265	23.44	58.6	230	8.3m	1.39	265	84.80	117.4	OK
3	Q102	MMST4401	ROHM	40.0	0.60	625.0	150.0	230	2.38	6.0	265	8.5m	1.41	265	82.20	87.1	OK
4	Q203	KST4403	SAMSU	40.0	0.60	357.0	150.0	265	7.50	18.8	265	11.3m	1.88	265	101.10	102.9	OK
5	Q205	KST4403	SAMSU	40.0	0.60	357.0	150.0	265	13.12	32.8	230	4.5m	0.75	265	94.30	105.9	OK
6	Q206	MMST4401	ROHM	40.0	0.60	625.0	150.0	265	31.25	78.1	230	10.6m	1.76	180	92.10	93.4	OK

TEMP. = Temperature ; *** : 180VAC - 265VAC

AMBIENT TEMPERATURE : 40°C

Rth(j-c) = Thermal Resistance , Junction to case

$T_j = V_{ce}(\text{TEST DATA; APPLY; } V_{rms}) * I_c(\text{TEST DATA; APPLY; } A) * R_{th(j-c)} + TEMP.(\text{TEST DATA; APPLY; } 40^{\circ}\text{C})$

EXAMPLE : (Q206) $T_j = .20044 * .01056 * 625.0 + 92.10 = 93.4^{\circ}\text{C}$

$V_{ce}(\text{TEST DATA; APPLY; } V) < V_{ce}(\text{COMPONENT SPEC.; } V) * 95\%$

$I_c(\text{TEST DATA; APPLY; } A) < I_c(\text{COMPONENT SPEC.; } A) * 80\%$

$T_j(\text{TEST DATA; } 40^{\circ}\text{C}) < TEMP.(\text{COMPONENT SPEC.; } ^{\circ}\text{C})$



KEY COMPONENT STRESS TEST DATA

MODEL NO : PA-1900-05D

REV : E

DATE :01-11-2002

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IC				Component Spec.				Worst Case Stress in Test Data										
No.	LOCATION	P/N	MAKER	V	I	TEMP.	Rth(j-C)	V(Peak)			Vout	I(rms)			TEMP.			
								INPUT	APPLY	%	V	INPUT	APPLY	%	INPUT	APPLY	Tj	JUDGE
				V	A	°C	°C/W	VAC	V			VAC	A		VAC	40°C	40°C	
1	IC1	L6561D	STM	18	30.00m	150.0	150.0	265	12.81	71.17	-----	265	27.28m	90.93	265	76.1	94.0	OK
2	IC100	LTA201P	PHILIP	20	62.50m	150.0	100.0	265	14.53	72.65	-----	265	16.37m	26.19	265	85.6	96.5	OK
3	IC302	TSM103AID	STM	36	20.00m	150.0	175.0	265	20.63	57.31	-----	230	435.70u	2.18	265	90.9	92.4	OK

TEMP. = Temperature ; *** : 180VAC - 265VAC
AMBIENT TEMPERATURE : 40°C

(1) EXAMPLE : NONE

$$T_j = [V_{in}(\text{TEST DATA; APPLY; } V_{rms}) - V_{out}] * I(\text{TEST DATA; APPLY; } A) * R_{th(j-c)} + TEMP.(\text{TEST DATA; APPLY; } 40^{\circ}\text{C})$$

(2) IC1,IC100,IC302

$$T_j = V(\text{TEST DATA; APPLY; } V_{rms}) * I(\text{TEST DATA; APPLY; } A) * R_{th(j-c)} + TEMP.(\text{TEST DATA; APPLY; } 40^{\circ}\text{C})$$

$$\text{EXAMPLE: (IC302) } T_j = 20.2 * .0004357 * 175.0 + 90.9 = 92.4^{\circ}\text{C}$$

$$V_{cc}(\text{TEST DATA; APPLY; } V) < V_{cc}(\text{COMPONENT SPEC.; } V) * 95\%$$

$$I_c(\text{TEST DATA; APPLY; } A) < I_c(\text{COMPONENT SPEC.; } A) * 80\%$$

$$T_j(\text{TEST DATA; APPLY; } 40^{\circ}\text{C}) < TEMP.(\text{COMPONENT SPEC.; } ^{\circ}\text{C})$$



KEY COMPONENT STRESS TEST DATA

MODEL NO : PA-1900-05D

REV : E

DATE :01-11-2002

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MOSFET				Component Spec.					Worst Case Stress in Test Data													
No.	LOCATION	P/N	MAKER	Vds	Vgs	Id	Rth(j-c)	TEMP.	Vds(Peak)			Vgs(Peak)			Id(rms)			P	TEMP.			
									INPUT	APPLY	%	INPUT	APPLY	%	INPUT	APPLY	%		INPUT	APPLY	Tj	JUDGE
				V	V	A	°C/W	°C	VAC	V		VAC	V		VAC	A		W	VAC	40°C	40°C	
1	Q001	2SK2842	TOSHB	500	30.0	12.0	3.1	150.0	230	418.8	83.8	180	12.34	41.1	180	0.68	5.66	0.75	265	85.2	87.5	OK
2	Q050	2SK2843	TOSHB	600	30.0	10.0	2.8	150.0	180	568.8	94.8	265	10.94	36.5	180	0.69	6.89	0.51	265	98.1	99.5	OK
3	Q200	STP40NF10L	STM	100	15.0	40.0	1.0	175.0	265	94.3	94.3	180	13.63	90.9	230	3.07	7.67	0.31	265	76.6	76.9	OK
4	Q201	STP40NF10L	STM	100	15.0	40.0	1.0	175.0	180	93.8	93.8	180	13.38	89.2	230	3.07	7.67	0.31	180	75.5	75.8	OK

TEMP. = Temperature ; *** : 180VAC - 265VAC

AMBIENT TEMPERATURE : 40°C

Rth(j-c) = Thermal Resistance , Junction to case

$T_j = P \text{ (TEST DATA; W)} * R_{th(j-c)} + TEMP. \text{ (TEST DATA; APPLY; } 40^{\circ}\text{C)}$

EXAMPLE : (Q201) $T_j = 0.31 * 1.0 + 75.5 = 75.8^{\circ}\text{C}$

$V_{ds} \text{ (TEST DATA; APPLY; V)} < V_{ds} \text{ (COMPONENT SPEC.; V)} * 95\%$

$I_d \text{ (TEST DATA; APPLY; A)} < I_d \text{ (COMPONENT SPEC.; A)} * 80\%$

$T_j \text{ (TEST DATA; APPLY; } 40^{\circ}\text{C)} < TEMP. \text{ (COMPONENT SPEC.; } ^{\circ}\text{C)}$

$V_{gs} \text{ (TEST DATA; APPLY; V)} < V_{gs} \text{ (COMPONENT SPEC.; V)} * 95\%$



KEY COMPONENT STRESS TEST DATA

MODEL NO : PA-1900-05D

REV : E

DATE :01-11-2002

Page 8

CHOKE		Component Spec.	Worst Case Stress in Test Data		
No.	LOCATION	TEMP.(WINDING)	TEMP.		
			INPUT	APPLY	JUDGE
		°C	VAC	40°C	
1	T050	130	180	102.8	OK
2	L001	130	180	75.9	OK
3	L002	130	265	96.3	OK
4	L003	130	265	79.6	OK
5	L010	130	180	75.1	OK
6	L200	130	180	92.8	OK

TEMP. = Temperature ; *** : 180VAC - 265VAC
AMBIENT TEMPERATURE : 40°C

TEMP.(TEST DATA; APPLY; 40°C) < TEMP.(COMPONENT SPEC.; °C)



KEY COMPONENT STRESS TEST DATA

MODEL NO : PA-1900-05D

REV : E

DATE :01-11-2002

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PHOTO-COUPLE				Component Spec.					Worst Case Stress in Test Data										
No.	LOCATION	P/N	MAKER	Vce(Vr)	Ic(If)	P	TEMP.	Rth(j-c)	Vr(Peak)			Ic(If)			P	TEMP.			
									INPUT	APPLY	%	INPUT	APPLY	%		INPUT	APPLY	Tj	JUDGE
				V	A	W	℃	℃/W	VAC	V		VAC	A		W	VAC	40℃	40℃	
1	PC300	LTV-817M-PRA	LITON	35.0	50.0m	0.15	125.0	500.0	265	12.190	34.8	180	756.80u	1.5	8.64m	265	92.0	96.3	OK
2	PC3002	LTV-817M-PRA	LITON	6.0	50.0m	70.00m	125.0	500.0	265	0.620	10.3	230	692.00u	1.4	415.20u	265	92.0	92.2	OK
3	PC301	LTV-817M-PRA	LITON	35.0	50.0m	0.15	125.0	500.0	230	12.810	36.6	265	655.40u	1.3	8.09m	265	88.6	92.6	OK
4	PC3012	LTV-817M-PRA	LITON	6.0	50.0m	70.00m	125.0	500.0	265	15.580m	0.3	180	426.40u	0.9	0.81u	265	88.6	88.6	OK

TEMP. = Temperature ; *** : 180VAC - 265VAC

AMBIENT TEMPERATURE : 40℃

$T_j = V_{ce}(V_r)(\text{TEST DATA; APPLY; } V_{rms}) * I_{c}(I_f)(\text{TEST DATA; APPLY; A}) * R_{th}(j-c) + \text{TEMP.}(\text{TEST DATA; APPLY; } 40^{\circ}\text{C})$

EXAMPLE : (PC3012) $T_j = .0023 * .0003538 * 500.0 + 88.6 = 88.6^{\circ}\text{C}$

$V_{ce}(V_r)(\text{TEST DATA; APPLY; V}) < V_{ce}(V_r)(\text{COMPONENT SPEC.; V}) * 95\%$

$I_{c}(I_f)(\text{TEST DATA; APPLY; A}) < I_{c}(I_f)(\text{COMPONENT SPEC.; A}) * 80\%$

$P(\text{TEST DATA; APPLY; W}) < P(\text{COMPONENT SPEC.; W})$

$T_j(\text{TEST DATA; } 40^{\circ}\text{C}) < \text{TEMP.}(\text{COMPONENT SPEC.; } ^{\circ}\text{C})$

PA-1900-05D MTBF REPORT LIST REV. E 01-11-2002			
COMPONENT	FAILURE RATE	Q'TY	PAGE NO.
Resistor	237.09	61	1, 2, 3
Capacitor	829.04	31	4, 5
Diode	853.00	16	6
Transformer	469.00	1	7
Transistor	8.98	6	8
IC	932.21	3	9
MOSFET	2660.04	7	10
Choke	85.18	5	11
Photo-Couple	611.28	4	12
Thermistor	65.00	1	13
TOTAL	6750.83	135	
MTBF	148130 HOURS		

REFER DOCUMENT : MIL - HDBK 217F

CUSTOMER MTBF SPEC. : 125,000 Hours

ACTUAL MTBF : 148,130 Hours

JUDGE : OK

PREPARED : 1/11/02 許文義

CHECK : α

APPROVED : 許文義 1/11/02

COMPONENT FAILURE RATE ANALYSIS

RESISTOR

[illegible]

COMPONENT FAILURE RATE ANALYSIS

RESISTOR

[illegible]

COMPONENT FAILURE RATE ANALYSIS

RESISTOR

[illegible]

COMPONENT FAILURE RATE ANALYSIS

CAPACITOR

Model NO. : PA-1900-05D				INPUT : 115VAC		OUTPUT : MAX LOAD AT : 25 °C		REV. E Page 4		
RATING				STRESS		$\lambda_p = \lambda_b * \pi E * \pi Q * \pi CV * 1000$				
Location	TYPE	CAP.	V(rate)	V		λ_b	πE	πQ	πCV	λP
C001	MEX	0.33UF	400	114.36		0.00129	1.0	10.000	1.001	12.89296
C002	MEF	0.47UF	400	119.15		0.00133	1.0	10.000	1.032	13.76206
C003	MEF	0.47UF	400	113.32		0.00128	1.0	10.000	1.032	13.19313
C004	MON	0.01UF	50	1.81		0.00064	1.0	3.000	1.129	2.15260
C005	MON	1UF	16	5.25		0.00159	1.0	3.000	1.874	8.95061
C005-1	MON	1UF	16	5.06		0.00150	1.0	3.000	1.874	8.41949
C006	DIS	2200PF	400	67.50		0.00081	1.0	3.000	0.956	2.32990
C008	MON	0.1UF	100	17.19		0.00075	1.0	3.000	1.455	3.28902
C009	MON	0.1UF	16	0.0u		0.00063	1.0	3.000	1.455	2.76823
C010	ELE	10UF	50	11.88		0.01325	1.0	3.000	0.515	20.45837
C011	DIS	220PF	1000	262.50		0.00115	1.0	3.000	0.742	2.56387
C024	MON	0.47UF	50	16.72		0.00164	1.0	3.000	1.725	8.51029
C050	DIS	470PF	1000	418.75		0.00257	1.0	3.000	0.807	6.20809
C051	ELE	120UF	400	221.88		0.02831	1.0	3.000	0.805	68.35382
C053	MON	3300PF	500	179.69		0.00172	1.0	3.000	1.000	5.17203
C054	ELE	22UF	50	12.66		0.01352	1.0	3.000	0.593	24.05826
C054-1	ELE	10UF	50	0.0u		0.01197	1.0	3.000	0.515	18.47579
C068	MON	1UF	10	418.8m		0.00069	1.0	3.000	1.874	3.88788
C109	MON	0.1UF	16	525.0m		0.00064	1.0	3.000	1.455	2.77185
C120	MON	0.022UF	25	1.53		0.00064	1.0	3.000	1.232	2.36341
C122	MON	220PF	100	36.88		0.00181	1.0	3.000	0.742	4.03558
C123	MON	0.22UF	16	593.8m		0.00069	1.0	3.000	1.587	3.28868
C124	MON	0.22UF	16	0.0u		0.00069	1.0	3.000	1.587	3.28247
C200	MON	220PF	200	62.50		0.00135	1.0	3.000	0.742	3.00819
C201	MON	0.1UF	16	125.0m		0.00063	1.0	3.000	1.455	2.76827
TOTAL										246.9649

COMPONENT FAILURE RATE ANALYSIS

CAPACITOR

[illegible]

COMPONENT FAILURE RATE ANALYSIS

DIODE

[illegible]

COMPONENT FAILURE RATE ANALYSIS

TRANSISTOR

[illegible]

IC

[illegible]

COMPONENT FAILURE RATE ANALYSIS

MOSFET

[illegible]

COMPONENT FAILURE RATE ANALYSIS

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COMPONENT FAILURE RATE ANALYSIS

PHOTO-COUPLE

Model NO. : PA-1900-05D INPUT : 115VAC OUTPUT : MAX LOAD AT : 25 °C							REV. E Page 12							
RATING							STRESS			$\lambda_p = \lambda_b * \pi E * \pi Q * \pi T * 1000$				
Location	MAKER	P/N	TYPE	Vr(V)	If(A)	Tj(°C)	Vr(V)	If(A)	Tj(°C)	λ_b	πE	πQ	πT	λP
PC300	LITON	LTV-817M-PRA	TRANSISTOR	35	.05	125	12.03	806.8u	81.1	0.00550	1.0	8.0	4.407	193.92030
PC3002	LITON	LTV-817M-PRA	DIODE	6	.05	125	620.0m	565.8u	76.7	0.00400	1.0	8.0	3.989	127.63740
PC301	LITON	LTV-817M-PRA	TRANSISTOR	35	.05	125	12.66	906.8u	77.0	0.00550	1.0	8.0	4.017	176.75270
PC3012	LITON	LTV-817M-PRA	DIODE	6	.05	125	15.6m	544.6u	71.4	0.00400	1.0	8.0	3.530	112.96950
TOTAL														611.2798

COMPONENT FAILURE RATE ANALYSIS

THERMISTOR

Model NO. : PA-1900-05D			INPUT : 115VAC		OUTPUT : MAX LOAD AT : 25 °C		REV. E Page 13	
RATING			$\lambda_p = \lambda_b * \pi E * \pi Q * 1000$					
Location	MAKER	TYPE	λ_b	πE	πQ	λ_P		
RT100	THINK	R.TH	.065	1.0	1.0	65.00000		
TOTAL						65.000		

PA-1900-05D MTBF REPORT LIST REV. E 01-11-2002			
COMPONENT	FAILURE RATE	Q'TY	PAGE NO.
Resistor	242.20	61	1, 2, 3
Capacitor	1173.82	31	4, 5
Diode	1189.29	16	6
Transformer	311.46	1	7
Transistor	8.20	6	8
IC	1003.13	3	9
MOSFET	2640.28	7	10
Choke	81.88	5	11
Photo-Couple	587.09	4	12
Thermistor	65.00	1	13
TOTAL	7302.35	135	
MTBF	136942 HOURS		

REFER DOCUMENT : MIL - HDBK 217F

CUSTOMER MTBF SPEC. : 125,000 Hours

ACTUAL MTBF : 136,942 Hours

JUDGE : OK

PREPARED : 許國義 1/11/02

CHECK : 2

APPROVED : 許廣揚 1/11/02

COMPONENT FAILURE RATE ANALYSIS

RESISTOR

[illegible]

COMPONENT FAILURE RATE ANALYSIS

RESISTOR

[illegible]

COMPONENT FAILURE RATE ANALYSIS

RESISTOR

[illegible]

COMPONENT FAILURE RATE ANALYSIS

CAPACITOR

Model NO. : PA-1900-05D				INPUT : 230VAC		OUTPUT : MAX LOAD AT : 25 °C			REV. E Page 4	
RATING				STRESS		$\lambda_p = \lambda_b * \pi E * \pi Q * \pi CV * 1000$				
Location	TYPE	CAP.	V(rate)	V		λ_b	πE	πQ	πCV	λP
C001	MEX	0.33UF	400	229.50		0.00768	1.0	10.000	1.001	76.84172
C002	MEF	0.47UF	400	230.98		0.00789	1.0	10.000	1.032	81.40730
C003	MEF	0.47UF	400	23.07		0.00109	1.0	10.000	1.032	11.19830
C004	MON	0.01UF	50	3.59		0.00064	1.0	3.000	1.129	2.17829
C005	MON	1UF	16	4.38		0.00121	1.0	3.000	1.874	6.82334
C005-1	MON	1UF	16	4.19		0.00115	1.0	3.000	1.874	6.45634
C006	DIS	2200PF	400	126.56		0.00150	1.0	3.000	0.956	4.29819
C008	MON	0.1UF	100	35.63		0.00170	1.0	3.000	1.455	7.40574
C009	MON	0.1UF	16	0.0u		0.00063	1.0	3.000	1.455	2.76823
C010	ELE	10UF	50	11.88		0.01325	1.0	3.000	0.515	20.45837
C011	DIS	220PF	1000	418.75		0.00257	1.0	3.000	0.742	5.71075
C024	MON	0.47UF	50	32.50		0.00770	1.0	3.000	1.725	39.86283
C050	DIS	470PF	1000	581.25		0.00571	1.0	3.000	0.807	13.80822
C051	ELE	120UF	400	383.75		0.09651	1.0	3.000	0.805	233.02900
C053	MON	3300PF	500	173.44		0.00161	1.0	3.000	1.000	4.84256
C054	ELE	22UF	50	12.81		0.01358	1.0	3.000	0.593	24.15772
C054-1	ELE	10UF	50	0.0u		0.01197	1.0	3.000	0.515	18.47579
C068	MON	1UF	10	481.3m		0.00069	1.0	3.000	1.874	3.89335
C109	MON	0.1UF	16	550.0m		0.00064	1.0	3.000	1.455	2.77239
C120	MON	0.022UF	25	1.56		0.00064	1.0	3.000	1.232	2.36460
C122	MON	220PF	100	35.94		0.00172	1.0	3.000	0.742	3.84005
C123	MON	0.22UF	16	618.8m		0.00069	1.0	3.000	1.587	3.28950
C124	MON	0.22UF	16	0.0u		0.00069	1.0	3.000	1.587	3.28247
C200	MON	220PF	200	39.75		0.00082	1.0	3.000	0.742	1.82271
C201	MON	0.1UF	16	125.0m		0.00063	1.0	3.000	1.455	2.76827
TOTAL										583.756

COMPONENT FAILURE RATE ANALYSIS

CAPACITOR

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COMPONENT FAILURE RATE ANALYSIS

DIODE

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COMPONENT FAILURE RATE ANALYSIS

TRANSFORMER

Model NO. : PA-1900-05D		INPUT : 230VAC		OUTPUT : MAX LOAD AT : 25 °C		REV. E Page 7	
RATING			STRESS	$\lambda_P = \lambda_b \cdot \pi E \cdot \pi Q \cdot 1000$			
Location	MAKER	TYPE	Ths(°C)	λ_b	πE	πQ	λ_P
T050	LITON	C30/19-52PC4	91.8	0.01038	1.0	30.0	311.45500
TOTAL							311.455

COMPONENT FAILURE RATE ANALYSIS

TRANSISTOR

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COMPONENT FAILURE RATE ANALYSIS

MOSFET

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COMPONENT FAILURE RATE ANALYSIS

CHOKe

Model NO. : PA-1900-05D			INPUT : 230VAC		OUTPUT : MAX LOAD AT : 25 °C		REV. E Page 11	
RATING			STRESS	$\lambda_p = \lambda_b * \pi E * \pi Q * \pi C * 1000$				
Location	MAKER	TYPE	Ths(°C)	λ_b	πE	πQ	πC	λP
L001	LITON	TR12*6*4	60.0	0.00060	1.0	20.0	1.0	12.00091
L002	LITON	TR16*12*8	82.6	0.00120	1.0	20.0	1.0	24.05711
L003	LITON	T60-26	62.0	0.00062	1.0	20.0	1.0	12.48773
L010	LITON	RM10 NC2H	61.1	0.00061	1.0	20.0	1.0	12.26433
L200	LITON	TR9*5*3	79.6	0.00105	1.0	20.0	1.0	21.07351
TOTAL								81.88359

COMPONENT FAILURE RATE ANALYSIS

PHOTO-COUPLE

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COMPONENT FAILURE RATE ANALYSIS

THERMISTOR

Model NO. : PA-1900-05D INPUT : 230VAC OUTPUT : MAX LOAD AT : 25 °C REV. E Page 13						
RATING			$\lambda_p = \lambda_b * \pi E * \pi Q * 1000$			
Location	MAKER	TYPE	λ_b	πE	πQ	λ_p
RT100	THINK	R.TH	.065	1.0	1.0	65.00000
TOTAL						65.000

DESIGN QUALIFICATION ENGINEERING REPORT			FILE NO. :D-020027
1/4 TEST	1/4 TEST	1/4 CURRENT	DATE :2002/1/8
TEST ITEM : SUMMARY REPORT		MODEL NO. : PA-1900-05D	
QUANTITY : 24		SER. NO. :	

⊠ @ ; ELECTRICAL FUNCTION TEST

No.	TEST ITEMS	RESULT	FILE NO.:
1	HIGH-TEMP.: ATE PROGRAM TEST	OK	020025
2	LOW-TEMP.: ATE PROGRAM TEST	OK	020024
3	HI-TEMP.: KEY COMPONENTS OF THERMAL TEST	OK	010976
4	MAIN POWER MOSFET TEST	OK	010994
5	BIAS VOLTAGE TEST	OK	010995

⊠ G ; ENVIRONMENTAL TEST

No.	TEST ITEMS	RESULT	FILE NO.:
1	ENVIRONMENTAL TEST	OK	010997
2	EMC TEST	OK	020022
3	BURN IN TEST	OK	010996
4	STRIFE TEST	OK	020023

⊠ T ; MECHANICAL INSPECTION

No.	TEST ITEMS	RESULT	FILE NO.:
1	SHOCK TEST	OK	010864
2	VIBRATION TEST	OK	010864
3	DROP TEST	OK	010972
5	STRIFE TEST	OK	010898

NOTE :

- 1.PCB : X5
- 2.Sample : 05D(A05)
- 3.Part List : 0D

CONCLUSION: 1/4 PASS 1/4 NG

PREPARED BY:Annie Shih

CHECKED BY:Kevin Cheng

APPROVED BY:Roger Huang

DESIGN QUALIFICATION HIGH-TEMP. ATE REPORT			FILE NO. : 020025
1/4	TEST	1/4	CURRENT
TEST ITEM : High Temp. Electrical Test		MODEL NO. : PA-1900-05D	
QUANTITY : 2		SER. NO. : 1, 2	

1. Purpose: Test the power supply's electrical function in high temperature environment by ATE and manual test.

2. Test Condition: Vin: 90 ~ 264 Vac
 Freq.: 47 ~ 63 Hz
 Temp.: 40 °C
 Load :
 FL1: +20V@4.51A
 ML: +20V@0A

3. Test Item & Result:

ATE FUNCTION TEST REPORT

NO.	CONTENTS	RESULT	REMARK
1	Line Regulation	OK	
2	Ripple & Noise	OK	
3	Load Transient Response	OK	
4	O.V.P.	OK	
5	O.C.P.	OK	
6	S.C.P.	OK	
7	Rise Time	OK	
8	Inrush Current	OK	
9	Turn-On Time	REF	
10	Hold-Up Time	REF	
11	Output Efficiency	REF	
12	Input Current	OK	
13	Output Overshoot	REF	
14	Static Load	OK	

NOTE :

1. PCB : X5
2. Sample : 05D(A05)
3. Part List : 0D

CONCLUSION: 1/4 PASS 1/4 NG

PREPARED BY: Annie Shih	CHECKED BY: Kevin Cheng	APPROVED BY: Roger Huang
-------------------------	-------------------------	--------------------------

DESIGN QUALIFICATION LOW-TEMP. ATE REPORT			FILE NO. : 020024
1/4 TEST	1/4 TEST	1/4 CURRENT	DATE : 2002/1/8
TEST ITEM : Low Temp. Electrical Test		MODEL NO. : PA-1900-05D	
QUANTITY : 2		SER. NO. : 1, 2	

1. Purpose: Test the power supply's electrical function in low temperature environment by ATE and manual test.

2. Test Condition: Vin: 90 ~ 264 Vac
 Freq.: 47 ~ 63 Hz
 Temp.: 0 °C
 Load :
 FL1: +20V@4.51A
 ML: +20V@0A

3. Test Item & Result:

ATE FUNCTION TEST REPORT

NO.	CONTENTS	RESULT	REMARK
1	Line Regulation	OK	
2	Ripple & Noise	OK	
3	Load Transient Response	OK	
4	O.V.P.	OK	
5	O.C.P.	OK	
6	S.C.P.	OK	
7	Rise Time	OK	
8	Inrush Current	OK	
9	Turn-On Time	REF	
10	Hold-Up Time	REF	
11	Output Efficiency	REF	
12	Input Current	OK	
13	Output Overshoot	REF	
14	Static Load	OK	

NOTE :

1. PCB : X5
2. Sample : 0D
3. Part List : 0D

CONCLUSION: 1/4 PASS 1/4 NG

PREPARED BY: Annie Shih	CHECKED BY: Kevin Cheng	APPROVED BY: Roger Huang
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D. Q. E. SECTION, POWER Q.R.A.

DESIGN QUALIFICATION THERMAL REPORT				FILE NO. : 010976	
1/4 £ \ TEST		1/4 £] TEST		1/4 CURRENT	
TEST ITEM : TEMP. PROFILE TEST				DATE :2001/12/26	
TEST ITEM : TEMP. PROFILE TEST				MODEL NO. : PA-1900-05D	
QUANTITY : 1 EA.				SER. NO. :1	

1.Test Condition:

INPUT: 264V,180V,132V,90V

FREQUENCY : 60Hz

LOAD: +20V@4.51A

CHAMBER TEMPERATURE: 40 °C

2.Record:

Location	Component	SPEC.	264V	180V	132V	90V
L001	CHOKE TR12*6*4 A10	150 °C	78 °C	68 °C	70 °C	67 °C
L002	CHOKE TR16*12*8 A10	155 °C	60 °C	57 °C	56 °C	60 °C
L003	CHOKE T60-26 300UH +- 13%	130 °C	94 °C	79 °C	79 °C	77 °C
L010	CHOKE A 1900-05 RM10 NC2H	150 °C	85 °C	74 °C	79 °C	77 °C
Q001	MFETN500V12A0.35STP12NM50FP	150 °C	88 °C	79 °C	84 °C	84 °C
Q050	MFET N 600V 10A 0.54 2SK2843	150 °C	91 °C	83 °C	89 °C	89 °C
T050	XFMR A1900-05 C30/19-52 PC40	130 °C	106 °C	100 °C	104 °C	104 °C
Q200	MFET N100V 75A 0.014 IRFB4710	150 °C	79 °C	74 °C	77 °C	77 °C
Q201	MFET N100V 75A 0.014 IRFB4710	150 °C	78 °C	74 °C	76 °C	76 °C
L200	CHOKE TR9*5*3 R7K 150T	150 °C	80 °C	76 °C	79 °C	78 °C
P1	Point above L010	-----	54 °C	51 °C	52 °C	52 °C
P2	Point above T050	-----	51 °C	49 °C	50 °C	50 °C
P3	Point under L010	-----	65 °C	61 °C	62 °C	62 °C
P4	Point under T050	-----	67 °C	63 °C	65 °C	65 °C
AMB		40 °C	39 °C	39 °C	39 °C	39 °C

3.Result: All remain within the specified limits.

NOTE :

1.PCB : X5

2.Sample : 05D(A05)

3.Part List : 0D

CONCLUSION: ☒ PASS ☐ NG

PREPARED BY:Annie Shih

CHECKED BY:Kevin Cheng

APPROVED BY:Roger Huang

DESIGN QUALIFICATION CIRCUIT STRUCTURE REPORT				FILE NO. : 010994	
i ¼	£ \ TEST	i ¼	£] TEST	i ¼	CURRENT
TEST ITEM : Mosfet Voltage Test				MODEL NO. :PA-1900-05D	
QUANTITY :1				SER. NO. :1	

1.Test Condition:

INPUT: Hi-Line : 265 V, Frequency : 63 Hz ; Low-Line : 90 V, Frequency : 47 Hz ;
 LOAD: FL: +20V@4.51A
 ML: +20V@0A

2.Record:

A.Main power Mosfet source: MFET N 600V 10A 0.54 2SK2843 Vgs : 30V

Q050		Low-Line		Hi-Line		JUDGE
Vds		FL	ML	FL	ML	
Vds	Vp-p	476	304	630	512	REF.
	Vmax	472	300	600	500	
Vds short	Vp-p	500	384	660	600	REF.
	Vmax	496	352	650	592	

Id	Low-Line		Hi-Line		JUDGE
	FL	ML	FL	ML	
	4.7	3.9	4.54	3.42	OK

Vgs	Low-Line		Hi-Line		JUDGE
	FL	ML	FL	ML	
Vp-p	12.2	11.6	12	10.3	OK
Vmax	11.6	11.4	11.6	10	

3.Result : OK !

NOTE :

- 1.PCB : X5
- 2.Sample : 05D(A05)
- 3.Part List : 0D

MOSFET EAS MAX.Limit : 267mJ (2SK2843)

*Eas Actual : $1/2L_L(I_{as})^2 BV_{DSS}/(BV_{DSS}-V_{DD})=277 \text{ } \mu\text{J}$ (LL : 7.7 μH , Ias=6.6A , VDD=370V)

CONCLUSION: ~~M~~ ¼ PASS i ¼ NG		
PREPARED BY:Annie Shih	CHECKED BY: Kevin Cheng	APPROVED BY: Roger Huang

DESIGN QUALIFICATION CIRCUIT STRUCTURE REPORT				FILE NO. : 010995																													
i ¼ £ \ TEST		i ¼ £] TEST		i ¼ CURRENT																													
DATE :2001/12/29																																	
TEST ITEM : Bias Voltage Test			MODEL NO. : PA-1900-05D																														
QUANTITY : 1 EA			SER. NO. :1																														
1.Test Condition: INPUT: Hi-Line: 264 V , FREQUENCY : 63 Hz Low-Line: 90 V , FREQUENCY : 47 Hz LOAD: FL: +20V@4.51A ML: +20V@0A 2.Record: A.Primary Bias Voltage for PWM IC , IC PWM 14P LTA201P SMD Vcc : 20V <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Hi-Line</th> <th colspan="2">Low-Line</th> </tr> <tr> <th>FL</th> <th>ML</th> <th>FL</th> <th>ML</th> </tr> </thead> <tbody> <tr> <td>Vcc</td> <td>17.6</td> <td>17.8</td> <td>16.6</td> <td>15.2</td> </tr> </tbody> </table> B.Secondary Bias Voltage , IC OPA 8P TSM103AID SMD Vcc : 36V <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Hi-Line</th> <th colspan="2">Low-Line</th> </tr> <tr> <th>FL</th> <th>ML</th> <th>FL</th> <th>ML</th> </tr> </thead> <tbody> <tr> <td>Vsec</td> <td>20.2</td> <td>20.2</td> <td>20.2</td> <td>20.2</td> </tr> </tbody> </table> NOTE : 1.PCB : X5 2.Sample : 05D(A05) 3.Part List : 0D							Hi-Line		Low-Line		FL	ML	FL	ML	Vcc	17.6	17.8	16.6	15.2		Hi-Line		Low-Line		FL	ML	FL	ML	Vsec	20.2	20.2	20.2	20.2
	Hi-Line		Low-Line																														
	FL	ML	FL	ML																													
Vcc	17.6	17.8	16.6	15.2																													
	Hi-Line		Low-Line																														
	FL	ML	FL	ML																													
Vsec	20.2	20.2	20.2	20.2																													
CONCLUSION: i ¼ PASS i ¼ NG																																	
PREPARED BY:Annie Shih			CHECKED BY:Kevin Cheng		APPROVED BY:Roger Huang																												

DESIGN QUALIFICATION ENVIRONMENTAL TEST REPORT			FILE NO. : 010997
TEST ITEM : Environmental Test	MODEL NO. : PA-1900-05D	DATE : 2001/12/29	
QUANTITY : 2	SER. NO. : 1	2	

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ENVIRONMENTAL TEST REPORT

NO.	TEST ITEM	RESULT	REMARK
1	OPERATING: HIGH TEMP. & HUMI.	OK	
	LOW TEMP. & HUMI.	OK	
2	POWER ON/OFF CYCLING	OK	
3	POWER DROP OUT	OK	
4	POWER VOLTAGE SURGE & SAG	OK	
5	WARM UP	OK	
6	COLD START	OK	
7	SHORT TERM STABILITY	OK	
8	INITIAL TOLERANCE TEST	OK	
9	STATIC LINE REGULATION TEST	OK	
10	LOAD REGULATION TEST	OK	
11	TEMPERATURE COEFFICIENT	OK	

NOTE :

- 1.PCB : X5
- 2.Sample : 05D(A05)
- 3.Part List : 0D

CONCLUSION: ☒ PASS ☐ NG ☐ REFERENCE

PREPARED BY:Annie Shih	CHECKED BY:Kevin Cheng	APPROVED BY:Roger Huang
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PA-1900-05D ENVIRONMENTAL TEST CONDITION RECORD

VINAFIX.COM

1. Operating at Temperature & Humidity Test

1-1. High temperature test condition:

Vin : 90Vac . 264Vac

Temp.: 40 °C

Load : +20V@4.51A

Freq. : 47Hz . 63Hz

Humi.: 95 %

Result: All outputs remain within the specified limits.

1-2. Low temperature test condition:

Vin : 90Vac . 264Vac

Temp.: 0 °C

Load : +20V@4.51A

Freq. : 47Hz . 63Hz

Humi.:-----

Result: All outputs remain within the specified limits.

2. Power on/off Cycling Test :

Test condition:

Vin : 265Vac

Freq.: 63Hz

Temp. : 25 °C

Humi.: -----

Load : +20V@4.51A

On/Off cycling : 15 Sec ON , 15 Sec OFF

Times : 15000 times

Result: The power supply survive repeated applications of on/off cycling.

3. POWER DROP OUT :

Test condition:

From 264Vac to 211.2V and back to 264Vac for 16ms at full load

Load : +20V@4.51A

Result: All outputs remain within the specified limits.

4. POWER VOLTAGE SURGE & SAG :

Test condition :

1. From 264Vac to 280V and back to 264Vac for 500ms at full load,63Hz

2. From 90Vac to 81V and back to 90Vac for 500ms at full load,47Hz

VINAFIX.COM

Load : +20V@4.51A

Result: All outputs remain within the specified limits.

5. Warm-up Test

Test condition:

Vin : 90Vac , 264Vac

Freq. : 47Hz , 63Hz

Temp.: 40 °C

Load : +20V@4.51A

Power supply at ambience time > 8Hr

Result: No component damage.

6. Cold-Start Test

Test condition:

Vin : 90Vac , 264Vac

Freq. : 47Hz , 63Hz

Temp.: 0 °C

Load : +20V@4.51A

Power supply at ambience time > 8Hr

Result: No component damage.

7. Short Term Stability Test :

Test condition:

Vin : 110Vac , 220Vac

Freq. : 60Hz

Temp.: 50 °C

Load : +20V@4.51A

Time: 12 Hr

Result: All outputs remain within the specified limits.

8. Initial Tolerance Test :

Test condition:

Vin : 115 Vac & 230Vac

Freq. : 60Hz

Load : +20V@4.51A

Temp.: 22 °C

Result: The initial tolerance is within +/- 0.6V .

9.Static Line Regulation Test

Test condition:

Vin : 90 Vac & 264Vac

Freq. : 60Hz

Load : +20V@4.51A

Temp.: 22 ºC

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Result: The static line regulation is within the specified limits.

10. Load Regulation Test

Test condition:

Vin : 115Vac

Freq. : 60Hz

Load : FL :+20V@4.51A

Temp.: 22 ºC

ML :+20V@ 0 A

Result: The static line regulation is within the specified limits.

11. Temperature Coefficient

Test condition:

Vin : 115Vac

Freq. : 60Hz

Load : +20V@4.51A

Temp.: 0 ºC ~ 40 ºC

Result: The temperature varying rate is within the specified limits.

DESIGN QUALIFICATION EMC TEST REPORT			FILE NO. : 020022
1/4 TEST	☒ 1/4 TEST	1/4 CURRENT	DATE : 2002/1/8
TEST ITEM : EMC Test		MODEL NO. : PA-1900-05D	
QUANTITY : 2 EA		SER. NO. :	

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EMC TEST ITEM

NO.	TEST ITEM	RESULT	REMARK
1	Leakage Current	OK	
2	IR TEST	OK	
3	Hi-pot Test	OK	
4	Lightning Surge Test	OK	
5	ESD Test	OK	
6	EFT TEST	OK	
7	Harmoics Test	OK	
8	Fluctuations Test	OK	
9	Voltage interruptions and voltage dips test	OK	
10	RF Radiated Fields immunity test	OK	
11	Conducted RF test	OK	
12	EMI Compliance Requirements	OK	
13	Acoustic Test	OK	
14	Power Frequency Magnetic Fields Test	OK	

NOTE :

- 1.PCB : X5
- 2.Sample : 05D(A05)
- 3.Part List : 0D

CONCLUSION: ☒ 1/4 PASS ☐ 1/4 NG ☐ 1/4 REFERENCE

PREPARED BY: Annie Shih

CHECKED BY:Kevin Cheng

APPROVED BY:Roger Huang

PA-1900-05D EMC TEST CONDITION RECORD

1. Leakage Current Test

Accord to IEC 950 , the leakage current shall be less than 460 mA.

Test condition : 120V / 60Hz

Test Record :

	NtoG	LtoG
No1	0.15 mA	0.15 mA
No2	0.15 mA	0.15 mA

Result: The leakage current remain within the specified limits.

2. IR Test

The minimum Impedance is 10 M Ω [

Test condition : 500V , 60 sec.

Test Record

	Impedance
No1	37.2G Ω [
No2	37.4G Ω [

Result: All outputs remain within the specified limits.

3. Hi-pot Test

Accord to SPEC. the trip current sensitivity is 10 mA maximum for 1500 Vac ,0.6 mA maximum for 2150 Vac

Test condition : 1500 Vac ,1 second.

Test Record :

	Vac
No1	2.38 mA
No2	2.36 mA

Result: The trip currents are remain within the specified limits.

4. Lightning Surge Test

Accord to IEC 61000-4-5 , bi-wave $\pm$ 1KV Line to Line / $\pm$ 2 KV Line to Earth

Test condition : 110 Vac / 60 Hz

Load : +20V@4.5A

Surge angle : 0° ,45° ,90° ,135° ,180° ,225° ,270° ,315° . 5 times per angle. And 20 seconds per time.

Result: PASS .

5. ESD Test

Accord to IEC 61000-4-2 , $\pm$ 8 KV contact , $\pm$ 15 KV air discharge.

Test condition : 110 Vac / 60 Hz

Load : +20V@4.5A

Contact:	+/- 8	kV Discharges:	10	times;	Interval:	1	sec.
Air:	+/- 15	kV Discharges:	10	times	Interval:	1	sec.

Result: PASS .

6.EFT Test

Accord to IEC61000-4-4 , Class 3

Test condition : 230 V/ 60Hz

Load : +20V@4.5A

COMMON VOLTAGE : ± 2 K V

FREQUENCY : 5K HZ

DURATION :60ms

COUPLING : L , N , L-N , PE , L-PE , N-PE , L-N-PE

Result: PASS.

7.Harmoics Test

Accord to IEC 61000-3-2 , class D

Test condition : 230 V /60 Hz

Load : +20V@4.5A

Attached a copy of report tested in Liteon.

Result: PASS .

8.Fluctuation Test

Accord to IEC 61000-3-3

Test condition : 230 V/ 60Hz

Load : +20V@4.5A

Attached a copy of report tested in ETC.

Result: PASS .

9.Voltage Interruptions and Voltage Dips Test

Accord to IEC 61000-4-11

Test condition :

Load : +20V@4.5A

Attached a copy of report tested in ETC.

Result: PASS .

10.Radiated Susceptibility

Accord to IEC 61000-4-3 , 3 V/m , 80-1000 MHz

Test condition : 230 V/ 50Hz

Load : +20V@4.5A

Attached a copy of report tested in ETC.

Result: PASS .

11.Conducted Immunity Test

Accord to IEC 61000-4-6 , 3 V , 0.15-80 MHz, 80% modulated.

Test condition : 230 V/ 50Hz

Load : +20V@4.5A

Attached a copy of report tested in ETC.

Result: PASS .

12.EMI Compliance Requirements

Accord to EN 55022 ,Class B , 4dB

Test condition : CISPR 22 Class B 230V/ 50Hz--- at 0.15MHZ~30MHZ

FCC Class B 110V/ 60Hz--- at 0.45MHZ~30MHZ

Load : +20V@4.5A

Attached a copy of report tested by Advance Data Tech.

Result: PASS

13. ACOUSTICS TEST

Acoustics - Measurement of Airborne Noise Emitted by Computer and Business Equipment ,21dB

a. 90 Vin, minimum current ; c. 264 vin, minimum current

b. 90 Vin, maximum current ; d. 264 vin, maximum current

Test condition: 90Vac & 264 Vac /60 Hz

Maximum Load : +20V@4.5A

Minimum Load : +20V@0A

Attached a copy of report tested by Advance Data Tech.

Result: PASS .

14. Power Frequency Magnetic Fields Test

Accord to EN 61000-4-8

Test condition : 230 V/ 50Hz

Load : +20V@4.5A

Attached a copy of report tested in ETC.

Result: PASS .

LITEON

HARMONICS TEST

ACCORDING TO IEC61000-3-2 CLASS D

MODEL NAME : PA-1900-05D

Test Date : 2001/12/13

INPUT POWER	W		99.325	
PF	%		0.973	
INPUT AC VOLTAGE	V		229.89	
INPUT CURRENT	A		0.444	
FREQUENCY	Hz		49.998	
+20V LOADING	A		4.51	
Po			90.2	
EFFICIENCY			91%	
N	A	READING	SPEC.	%
3	0.337705	0.06141	0.34	18.18%
5	0.188718	0.01891	0.19	10.02%
7	0.099325	0.01286	0.1	12.94%
9	0.049663	0.00785	0.05	15.80%
11	0.034764	0.00539	0.03	15.50%
13	0.029415	0.00273	0.03	9.28%
15	0.025493	0.00146	0.03	5.72%
17	0.022494	0.0015	0.02	6.67%
19	0.020126	0.00168	0.02	8.34%
21	0.01821	0.00238	0.02	13.06%
23	0.016626	0.00231	0.02	13.89%
25	0.015296	0.00233	0.02	15.23%
27	0.014163	0.00191	0.01	13.48%
29	0.013186	0.0022	0.01	16.68%
31	0.012336	0.00334	0.01	27.06%
33	0.011588	0.0033	0.01	28.46%
35	0.010926	0.00244	0.01	22.32%
37	0.010335	0.00147	0.01	14.22%
39	0.009805	0.00114	0.01	11.62%

CONCLUSION :

☒ PASS☐ NG

PREPARED BY :

石欣怡

LITEON**HARMONICS TEST**

ACCORDING TO IEC61000-3-2 CLASS D

MODEL NAME : PA-1900-05D

SAMPLE SER. NO : 2

Test Date : 2001/12/13

INPUT POWER	W		99.622	
PF	%		0.974	
INPUT AC VOLTAGE	V		229.95	
INPUT CURRENT	A		0.445	
FREQUENCY	Hz		50.061	
+20V LOADING	A		4.51	
Po			90.2	
EFFICIENCY			91%	
N	A	READING	SPEC.	%
3	0.338715	0.06171	0.34	18.21%
5	0.189282	0.01907	0.19	10.07%
7	0.099622	0.01176	0.1	11.80%
9	0.049811	0.00844	0.05	16.94%
11	0.034868	0.00534	0.03	15.31%
13	0.029503	0.00306	0.03	10.37%
15	0.02557	0.0016	0.03	6.26%
17	0.022561	0.0009	0.02	3.99%
19	0.020187	0.00134	0.02	6.64%
21	0.018264	0.00241	0.02	13.19%
23	0.016676	0.00265	0.02	15.89%
25	0.015342	0.00239	0.02	15.57%
27	0.014205	0.00194	0.01	13.65%
29	0.013226	0.00219	0.01	16.56%
31	0.012372	0.00265	0.01	21.41%
33	0.011623	0.00233	0.01	20.04%
35	0.010958	0.00079	0.01	7.21%
37	0.010366	0.00136	0.01	13.12%
39	0.009834	0.00108	0.01	10.98%

CONCLUSION :

☒ PASS☐ NG

PREPARED BY :

石欣怡

FLUCTUATIONS TEST REPORT

TEST STATION

ETC-EMS TEST SITE

DATE 1/03/02

TEST PERFORMED BY:

KEN

TEL: 03-3280026

UNIT UNDER TEST. MAKE:

MODEL:

PA-1900-05D

OUTPUT FILE:

C:\1000-3-3\012\001

COMMENTS

FULL LOAD (90W)

GPID: 2

PASS

STOP

Channel A

USE Pst & PIt? YES

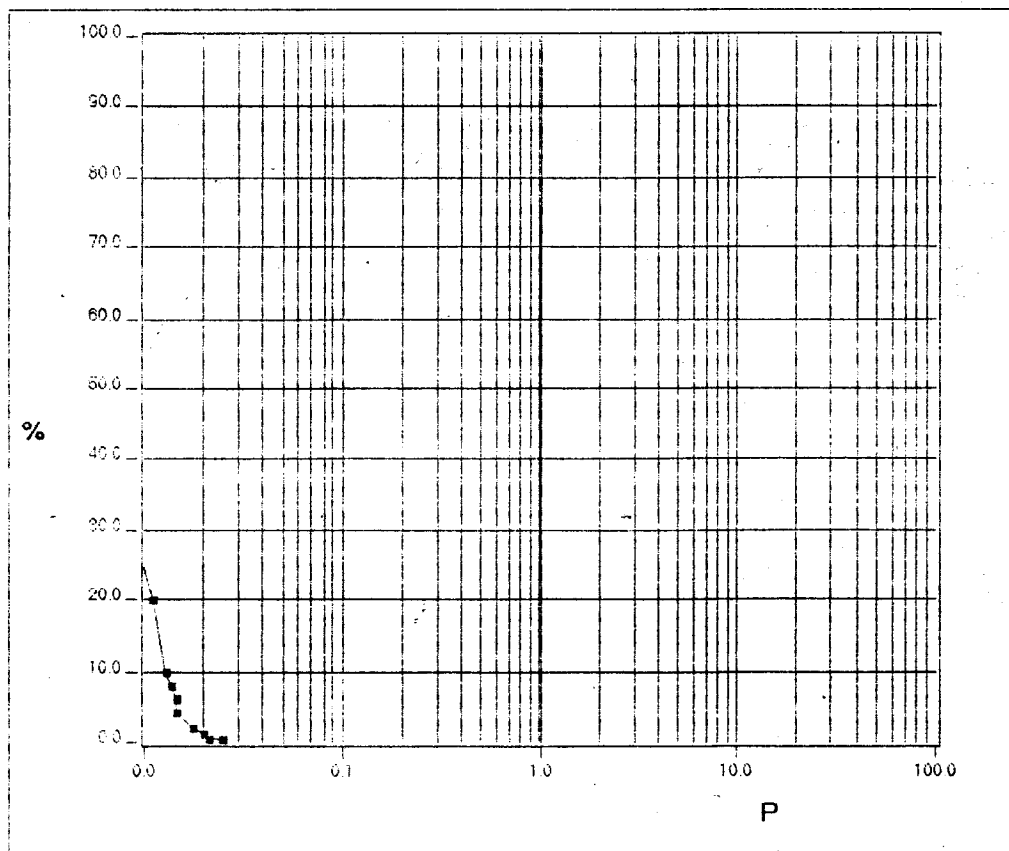
FILE UPDATE RATE (SECS) 10

TEST LENGTH 120.00 Min

TEST START 9:49:36

TIME TO GO 0.00 Min

TEST STOP 11:51:31



UPDATED

Plt 0.09

Pst 0.09

dt -0.02 %

dmax 0.00 %

dc 0.00 %

Ut 228.70 Vrms

MAXIMUM

Pst 0.10

dt > 3% 0 ms

dt -0.14 %

dmax 0.00 %

dc 0.00 %

ELECTRONICS TESTING CENTER(ETC), TAIWAN



EMC TESTING DEPARTMENT (EMS SECTION)
NO. 8 LANE 29, WEN-MING RD., LO-SHAN TSUN,
KUI-SHAN HSIANG, TAOYUAN HSIEN, TAIWAN, R.O.C

TEL: (03)3280026#571,573
FAX: (03)3276188

Voltage interruptions and voltage dips immunity tests

Page: 1/1

Applicant	LITE-ON ELECTRONICS, INC			Application No.	
Device	S.P.S.	Model No.	PA-1700-05D	Test Dated	Jan. 03, 2002
Test Specification	IEC 61000-4-11:1994/A1:2000				
Test Equipment					
Mains interference simulator/Haefely/PLINE 1610					
Climatic Condition	Ambient Temperature : 26°C Relative Humidity : 59%RH Atmospheric Pressure : 986mbar				
Power Supply System	AC Power : 230 Vac 50 Hz				
Test Set-up	Table-top Equipment				
Operating Conditions of The Device	FULL LOAD				

Test mode	Voltage dips	Durations (period)	Interval(s)	Times	Phase	Result
Voltage interruptions	>95%	250	10	12	0° / 180°	B
Voltage dips in %U _T	>95%	0.5	10	12	0° / 180°	N
	30%	25	10	12	0° / 180°	N

Note : "N" means the EUT function was correct during the test.

"B" means the EUT function shut down (output voltage = 0) during the test and recovered by itself after the test.

This Test Record is not allowed for formal declaration without the allowance of the test laboratory.

The internal designation and/or modification of the EUT is not verified and recorded in this test.

Note : 1. The results of the Test Record relate only to the items tested.

2. The Test Record shall not be reproduced except in full, without the written approval of ETC.

Tested by : Ken

Checked by : _____

ELECTRONICS TESTING CENTER(ETC), TAIWAN



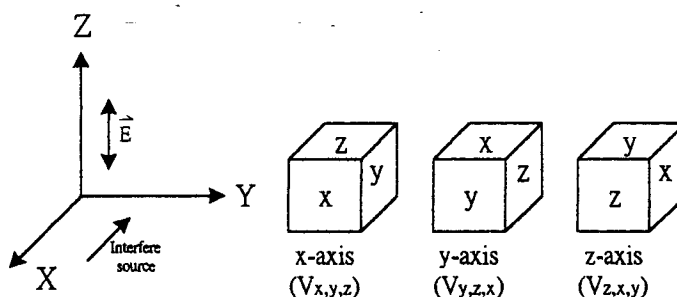
EMC TESTING DEPARTMENT (EMS SECTION)
NO. 8 LANE 29, WEN-MING RD., LO-SHAN TSUN,
KUI-SHAN HSIANG, TAOYUAN HSIEN, TAIWAN, R.O.C

TEL: (03) 3280026 #571, 573
FAX: (03) 3276188

RF Radiated Fields immunity test

Page: 1 / 1

Applicant	LITE-ON ELECTRONICS, INC			Application No.	
Device	S.P.S.	Model No.	PA-1900-05D		Test Dated Jan. 03, 2002
Test Specification	IEC 61000-4-3:1995/A1:1998/A2:2000				
Test Equipment					
Metering Unit & Probe \ EMCO \ 7122 SMGL Generator \ R&S \ 1020.2005.52 Amplifier \ IFI \ M5540			GTEM CELL \ EMCO \ 5317 Data Processing \ EMCO \ 7110		
Climatic Condition	Ambient Temperature : 23°C Relative Humidity : 58%RH Atmospheric Pressure : 986mbar				
Power Supply System	AC Power : 230 Vac 50 Hz				
Test Set-up	Table-top Equipment				
Operating Conditions of The Device	FULL LOAD				



Frequency Range : <u>80</u> MHz ~ <u>1000</u> MHz		Field Strength : <u>10^3</u> V/m	Modulation (AM 1kHz 80%)
Sweep Rate : $\leq 1.5 \times 10^{-3}$ decades/s		Step Size : $\leq 1\%$ of preceding frequency value	Dwell Time : <u>2.9</u> s
Frequency Range (MHz)	Test Axis	Polarization of Device	Test Result
80 ~ 1000	x-axis	Vertical	N
80 ~ 1000	y-axis	Vertical	N
80 ~ 1000	z-axis	Vertical	N

Note : "N" means the EUT function was correct during the test.

This Test Record is not allowed for formal declaration without the allowance of the test laboratory.

The internal designation and/or modification of the EUT is not verified and recorded in this test.

- Note :
- The results of the Test Record relate only to the items tested.
 - The Test Record shall not be reproduced except in full , without the written approval of ETC.

Tested by : Ken

Checked by : _____

ELECTRONICS TESTING CENTER(ETC), TAIWAN



EMC TESTING DEPARTMENT (EMS SECTION)
NO. 8 LANE 29, WEN-MING RD., LO-SHAN TSUN,
KUI-SHAN HSIANG, TAOYUAN HSIEN, TAIWAN, R.O.C

TEL:(03)3280026#571,573
FAX:(03)3276188

RF common mode immunity test

Page: 1/ 1

Applicant	LITE-ON ELECTRONICS, INC			Application No.	
Device	S.P.S.	Model No.	PA-1900-05D	Test Dated	Jan. 03, 2002
Test Specification	IEC 61000-4-6 :1996/A1:2000				
Test Equipment					
Signal Generator \ MARCONI \ 2030 Wideband RF Power Amplifier \ KALMUS \ 225LC RF Voltmeter \ Boonton \ 9200B Controller \ HP \ Vectra VL24/33 RF Switch \ COMTEST \ RF-6			Direction Coupler \ AR \ DC2500 -6dB Attenuator \ RADIAL \ R415706 ☐ EM Injection Clamp \ FCC \ F-203I-23mm ☒ CDN \ FCC \ FCC-801-M3-25 ☐ CDN \ FCC \ FCC-801-M2-25		
Climatic Condition	Ambient Temperature : 23°C		Relative Humidity : 58%RH		
Power Supply System	AC Power : 230 Vac 50 Hz				
Test Set-up	Table-top Equipment				
Operating Conditions of The Device	FULL LOAD				

Frequency Range : 0.15 MHz ~ 80 MHz	Voltage : 3 V	Modulation (AM 1kHz 80%)
Sweep Rate : $\leq 1.5 \times 10^{-3}$ decades/s	Step Size : $\leq 1\%$ of preceding frequency value	Dwell Time : 2.9 s
Frequency Range (MHz)	Tested Line	Test Result
0.15 ~ 80	Power Line	N

Note : "N" means the EUT function was correct during the test.

This Test Record is not allowed for formal declaration without the allowance of the test laboratory.
The internal designation and/or modification of the EUT is not verified and recorded in this test.

Note : 1. The results of the Test Record relate only to the items tested.
2. The Test Record shall not be reproduced except in full , without the written approval of ETC.

Tested by : Ken

Checked by : _____

Branch / Model: PA-1900-05D

Test Mode:

Power Source: 110V

Remark: FULL LOAD

Tested by: JN

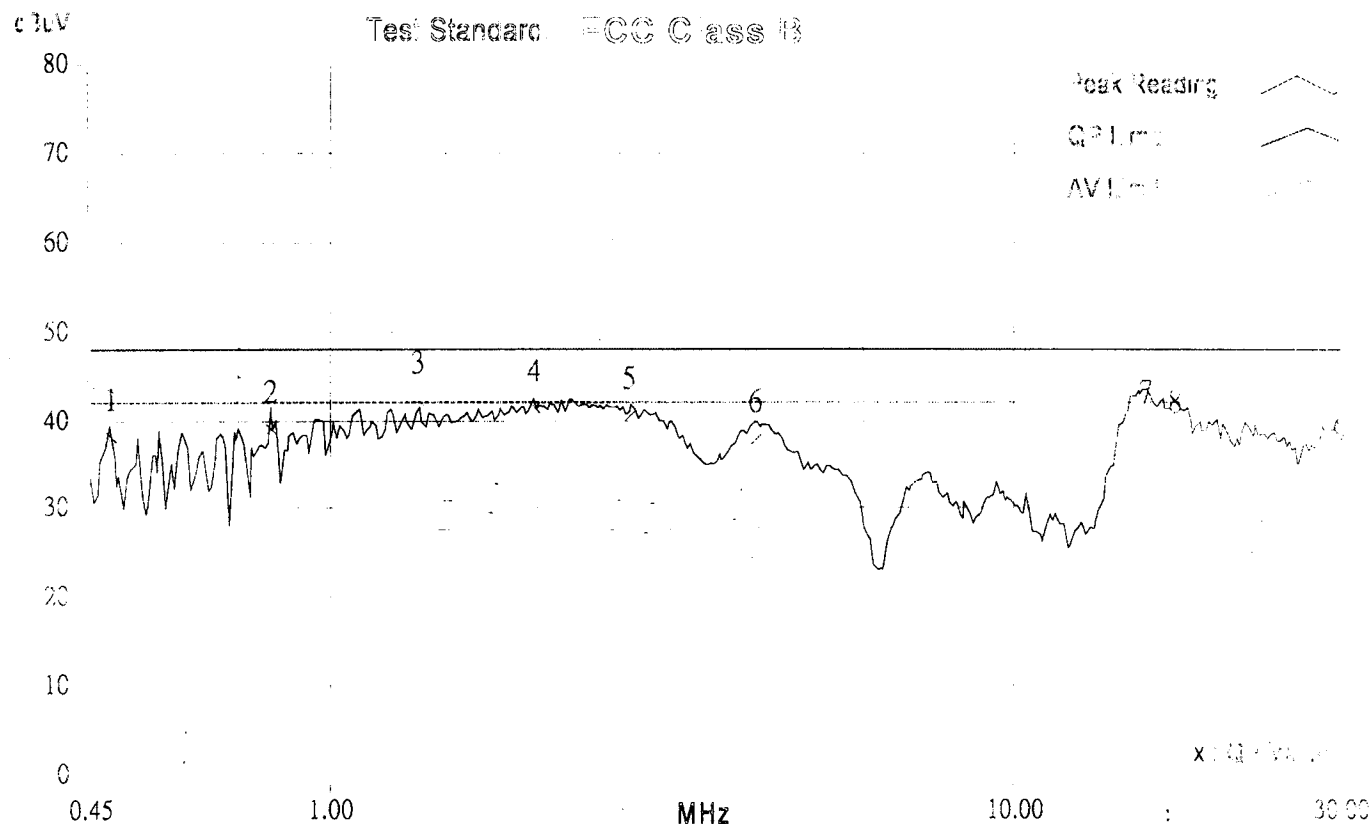
Location: Conduction 2

Date: 2001/12/13

Time: PM 02:53:22

Phase: N

*** This data is for evaluation purposes only. It cannot be used for EMC approvals ***



No.	Frequency MHz	Corr factor dB	Reading dBμV	QP dBμV	Limit dBμV	Margins dB
1	0.48274	0.10	37.02	37.12	48.00	-10.88
2	0.82554	0.10	37.83	37.93	48.00	-10.07
3	1.34700	0.10	41.12	41.22	48.00	-6.78
4	1.97679	0.10	40.19	40.29	48.00	-7.71
5	2.73686	0.17	39.48	39.65	48.00	-8.35
6	4.17192	0.30	36.65	36.95	48.00	-11.05
7	15.54283	0.62	37.99	38.61	48.00	-9.39
8	17.15300	0.69	36.66	37.35	48.00	-10.65
9	30.00000	1.00	33.46	34.46	48.00	-13.54

Brand / Model: PA-1900-05D

Test Mode:

Power Source: 110V

Remark: -FULL LOAD

Tested by: JN

Location: Conduction 2

Date: 2001/12/13

Time: PM 02:50:59

Phase: 11

*** This data is for evaluation purposes only. It cannot be used for EMC approvals ***

dBuV

Test Standard: FCC Class B

80

70

60

50

40

30

20

10

0

0.45

1.00

MHz

10.00

20.00

Peak Reading

Q1 Limit

AV Limit

x Q-Value

Frequency	Corr. Factor	Reading dBuV	Emission dBuV	Limit dBuV	Margins dB	
No.	MHz	dB	QP	QP	QP	
1	0.47974	0.10	36.68	36.78	48.00	-11.22
2	0.82577	0.10	37.16	37.26	48.00	-10.74
3	1.98707	0.10	39.75	39.85	48.00	-8.15
4	2.63101	0.16	38.97	39.13	48.00	-8.87
5	15.73921	0.83	38.00	38.83	48.00	-9.17
6	17.38700	0.90	36.63	37.53	48.00	-10.47

Brand / Model : PA-1900-05D

Test Mode :

Power Source : 230V

Remark : FULL LOAD

Tested by : JN

Location: Conduction 2

Date: 2001/12/13

Time: PM 02:39:16

*** This data is for evaluation purposes only It cannot be used for EMC approval ***

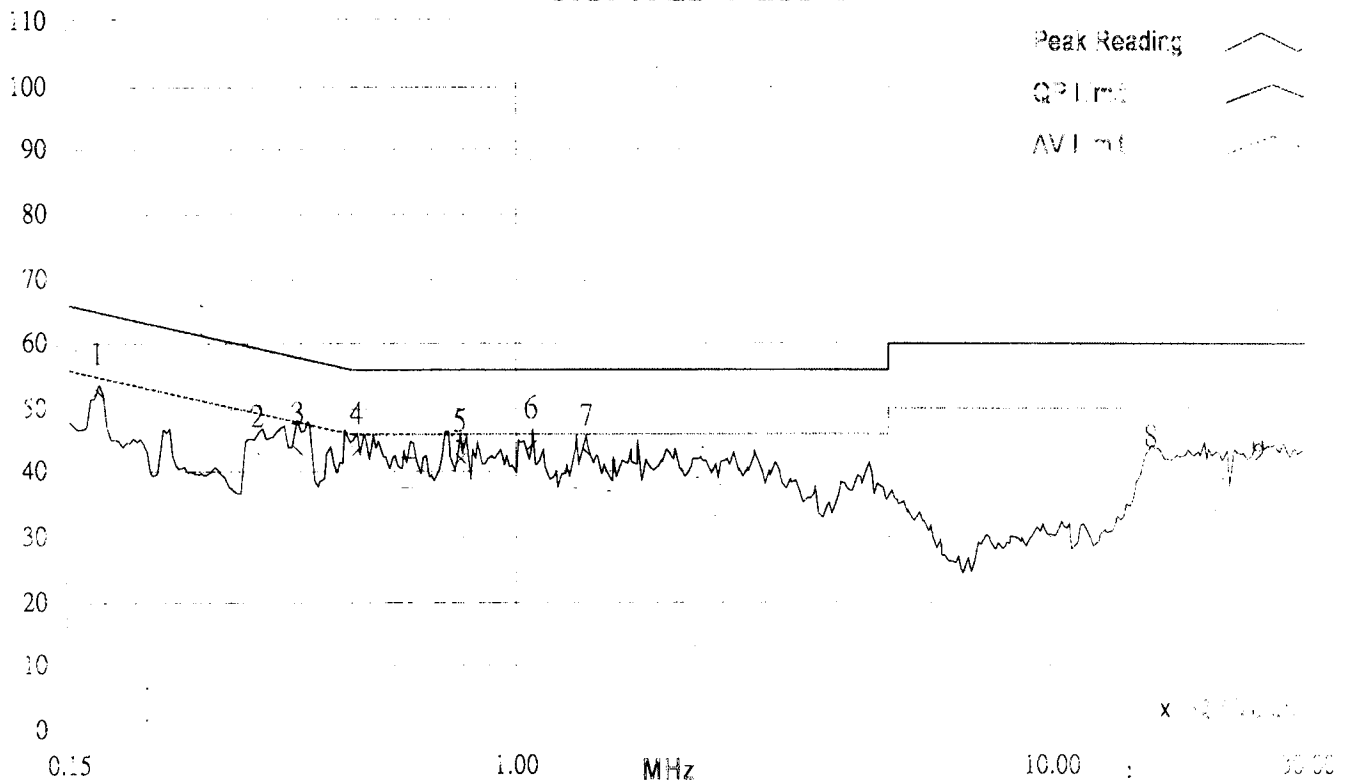
dBuV

Test Standard: CISPR 22 Class B

Peak Reading

QP Limit

AV Limit



No.	Frequency MHz	Corr. Factor dB	Reading dBuV QP AV	Emission dBuV QP AV	Limit dBuV QP AV	Margins dB QP AV
1	0.17026	0.10	52.06 46.75	52.16 46.85	54.95 54.95	-12.79 -8.10
2	0.33631	0.10	42.03 35.06	42.13 35.16	59.29 49.29	-17.16 -14.13
3	0.39584	0.10	42.53 38.47	42.63 38.57	57.94 47.94	-15.31 -9.37
4	0.50863	0.10	42.49 35.81	42.59 35.91	56.00 46.00	-13.41 -10.09
5	0.79200	0.10	41.42 38.51	41.52 38.61	56.00 46.00	-14.48 -7.39
6	1.08000	0.10	43.41 37.78	43.51 37.88	56.00 46.00	-12.49 -8.12
7	1.36247	0.10	42.22 37.62	42.32 37.72	56.00 46.00	-13.68 -8.28
8	15.39200	0.62	38.99 32.85	39.61 33.47	60.00 50.00	-20.39 -16.53
9	24.57211	0.89	36.72 27.84	37.61 28.73	60.00 50.00	-22.39 -21.27

Brand / Model : PA-1900-05D

Test Mode :

Power Source : 230V

Remark : FULL LOAD

tested by : JN

Location: Conduction 2

Date: 2001/12/13

Time PM 02:43:13

Page: 1/1

*** This data is for evaluation purposes only. It cannot be used for EMC approval. ***

dBuV

Test Standard: CISPR 22 Class B

110

100

90

80

70

60

50

40

30

20

10

0

0.15

1.00

MHz

10.00

20.00

Peak Reading

QP Limit

AV Limit

Frequency		Corr. Factor	Reading dBuV		Emission dBuV		Limit dBuV		Margin dB	
No.	MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV
1	0.16894	0.10	52.57	47.30	52.67	47.40	55.01	55.01	-12.34	-7.61
2	0.33514	0.10	45.12	36.88	45.22	36.98	55.25	49.25	-14.03	-12.27
3	0.39477	0.10	43.68	38.82	43.78	38.92	57.96	47.96	-14.18	-9.04
4	0.50834	0.10	44.04	36.10	44.14	36.20	56.00	46.00	-11.86	-9.80
5	0.73395	0.10	41.42	38.46	41.52	38.56	56.00	46.00	-14.48	-7.44
6	1.01565	0.10	43.65	39.01	43.75	39.11	56.00	46.00	-12.25	-6.89
7	1.36037	0.10	43.14	37.94	43.24	38.04	56.00	46.00	-12.76	-7.96
8	1.64100	0.10	42.53	37.38	42.63	37.48	56.00	46.00	-13.37	-8.62
9	19.81204	0.99	37.12	28.40	38.11	29.39	60.00	50.00	-21.89	-20.61

委託廠商： 光寶 / 石欣怡 先生/小姐 技服編號： 90F43C482G1
 預約日期： 90 年 11 月 2 日； 測試日期： 90 年 11 月 30 日 (R=0.8)

1. 待測機種類

☐ PC - ☐ NoteBook ☒ PSU ☐ 其他 _____
 待測機外殼尺寸： 133 mm (L) × 60 mm (W) × 30 mm (H)

待測機 -- 型號 / 序號	廠牌	環境溫度： <u>23.7</u> (°C)
<u>PA-1900-05D</u>	<u>LITEON</u>	環境濕度： <u>50</u> (%)

3. 待測機配備 & 規格：

配件表	廠牌	型號、規格	序號
Main Board			
CPU			
HDD			
FDD			
CD-ROM			
CD-RW			
DVD-ROM			
PSU FAN			
CPU FAN			
SYS FAN			
測試軟體			

2. 測試項目 / 數量 (參照 ISO 7779)	
聲功率位準 (SWL) <u>X</u> 台 (N)	
聲壓位準 (SPL) ☒ OPERATOR <u>1</u> 支 MIC. <u> </u> 台 (N) ☒ BYSTANDER <u> </u> 支 MIC. <u> </u> 台 (N)	
SPL 量測距離 / 位置 ☒ OPERATOR D: <u>0.5</u> cm ; H: <u>120</u> cm ☒ BYSTANDER D: <u> </u> cm ; H: <u> </u> cm 『俯視圖』:	

4. 測試狀態 (MODE) 及測試條件：

測試項目 (MODE)	測 試 條 件			備 註
	SEEK	Fan	☒ ON ☒ OFF	
☐ IDLE	☐ DOS ☐ WIN.	☐ CPU ☐ PSU ☐ SYS		90 Volt 60Hz Min. Current: 19.6 Max. Current: 19.5
☐ IDLE	☐ DOS ☐ WIN.	☐ CPU ☐ PSU ☐ SYS		
☐ HDD	☐ R ☐ L/S ☐ B	☐ CPU ☐ PSU ☐ SYS		
☐ FDD	☐ R ☐ L/S ☐ B	☐ CPU ☐ PSU ☐ SYS		
☐ CD-ROM	☐ R ☐ L/S ☐ B	☐ CPU ☐ PSU ☐ SYS		240 Volt 50Hz Min. Current: 19.5 Max. Current: 19.6
☐ CD-RW	☐ R ☐ L/S ☐ B	☐ CPU ☐ PSU ☐ SYS		
☐ DVD-ROM	☐ R ☐ L/S ☐ B	☐ CPU ☐ PSU ☐ SYS		
☐ PSU FAN	(Vol.)	(RPM.)		
小 計	測試狀態數, M=	☒ 需測試紀錄(RP=0) ☒ 需正式報告 (RP=5000)		

5. 計費公式 費用 = { Σ [(5000 + 1250 × M) × N] } × A × R + RP + SET × 5000

計費公式說明： M：測試狀態數， N：測試機台數， RP：提供測試紀錄與正式報告 (RP=5000)；提供測試紀錄不需正式報告 (RP=0)
 A：一般 A=1；加班或額外數據處理 A=1.5， R：提早預約折扣數 (提早一週 R=0.9，提早二週 R=0.8)， SET：麥克風設置次數

頁次	<u>2</u> -1	<u>2</u> -2	<u> </u> -3	<u> </u> -4	<u> </u> -5	參數
M	<u>4</u>	<u>5</u>				A= <u>1</u>
N	<u>1</u>	<u>1</u>				R= <u>0.8</u>
小計	<u>8000</u>	<u>9000</u>				RP= <u>0</u>
備註						SET= <u>1</u>
本次費用	<u>22000.-</u>		報價(未稅)		<u>22000.-</u>	



委託廠商： 石欣怡 機械所： 林敏印

聲功率測試報告(The Test Report of Sound Power Level)

待測物型號(Sample Type): SPL光寶PSU(901130)

測試日期(Test Date):

2001/11/30 AM 10:15:07

基本規格(Specification):

測試編號(Test No.):

1

量測物長(Length): 0.133 m

量測物寬(Width): 0.06 m

量測物高(Height): 0.03 m

測試條件(Test Condition):

麥克風距離(Mic. distance): 0.5 m

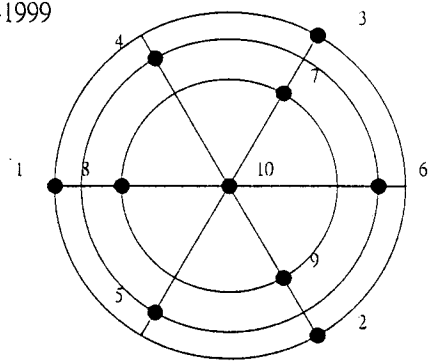
量測表面積(Area of Meas. Surface): 1.6 m²

量測時間(Measuring Time): 20 秒

依循標準ISO 7779-1999

位置示意圖:

(Mic. Positions)



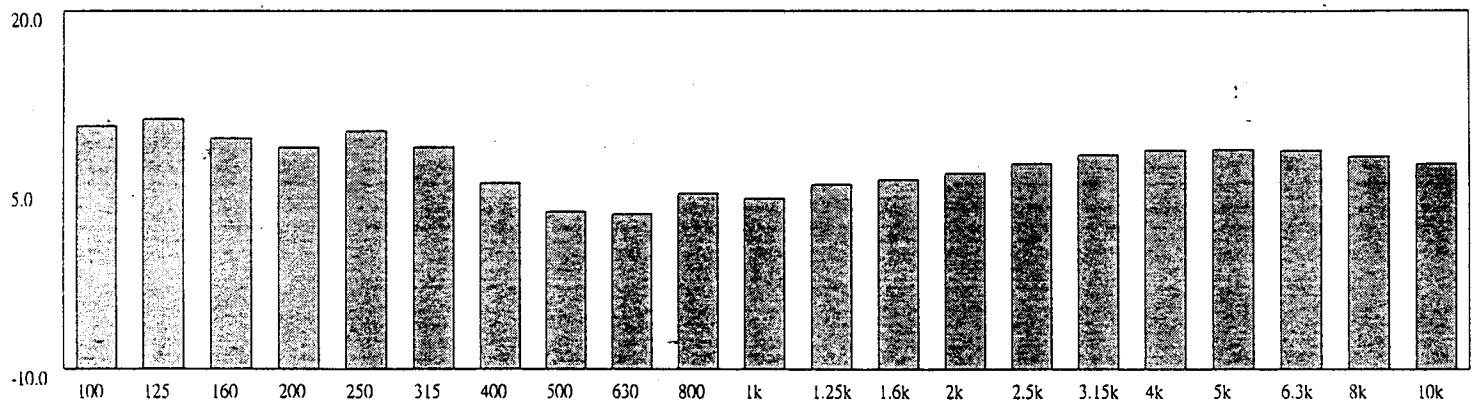
測試結果(Test Results) 單位(Unit: dB(A))

	第1點 Position 1	第2點 Position 2	第3點 Position 3	第4點 Position 4	第5點 Position 5	第6點 Position 6	第7點 Position 7	第8點 Position 8	第9點 Position 9	第10點 Position 10
測點背景音壓 Background Noise Level at each point	19.5	19.5	22.9	21.5	18.5	20.1	20.1	18.7	19.2	20.0
測點均能音壓位準 Time Averaged SPL at each point	19.6	19.6	23.0	21.5	18.6	20.2	20.0	18.7	19.3	20.0

計算聲功率位準(Calculation of the A-weighted Sound Power Level)

背景噪音位準平均值 Averaged Background Noise Level	均能聲壓位準平均值 Time Averaged SPL	量測表面積位準 Level of Measurement Surface	聲功率位準 Sound Power Level
20.2	20.2	2.0	20.9

聲功率位準頻譜圖(Sound Power Levels of 1/3 octave-band Spectrum)



頻率	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k
聲功率	10.4	10.9	9.4	8.6	10.0	8.6	5.6	3.3	3.0	4.8	4.3	5.5	5.9	6.4	7.3	8.0	8.4	8.5	8.3	7.9	7.2

說明(Remark)

90 Voltage, 60 Hz (Min. Current) PA-1900-05D

簽核人員(Signatory):

測試人員(Operator):

系統開發(Developer): 工業技術研究院機械工業研究所(MIRL/ITRI)

列印日期: 2001/11/30 AM 10:15:34

各測點背景噪音位準頻譜圖(Spectrum of Background Noise at each point)

型號(Sample Type): SPL光寶PSU(901130)

測試日期(Test Date):

2001/11/30 AM 10:15:07

測試編號(Test No.):

1

PA-1900-05D

Pt. 1

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.9	7.5	8.2	5.8	7.9	5.2	2.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
9	1.3	2.7	2.9	3.8	4.9	5.7
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.6	7.3	7.7	7.8	7.7	7.2	6.6

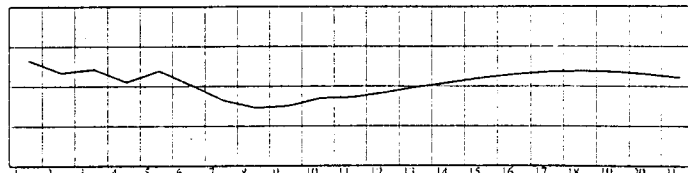
20.0

12.5

5.0

-2.5

-10.0



Pt. 2

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.5	5.8	5.8	5.2	8.1	6.0	4.8
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.3	1.1	3.6	3.7	5.0	6.0	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.7	7.3	7.7	7.7	7.6	7.1	6.4

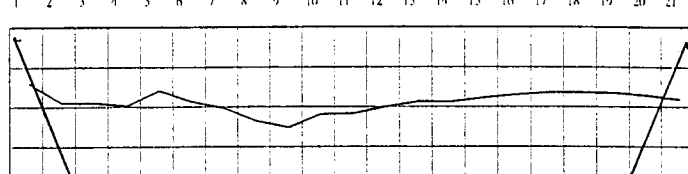
20.0

12.5

5.0

-2.5

-10.0



Pt. 3

1:100	2:125	3:160	4:200	5:250	6:315	7:400
14.8	13.6	13.2	12.6	14.4	12.8	9.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.9	2.2	4.2	2.4	3.6	4.6	5.4
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.2	6.8	7.2	7.3	7.2	6.7	6.0

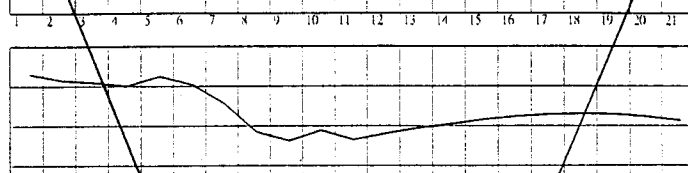
20.0

12.5

5.0

-2.5

-10.0



Pt. 4

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.0	14.3	12.4	11.9	11.1	7.5	3.4
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.8	1.1	1.9	2.4	3.8	4.9	5.6
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.4	7.2	7.7	7.8	7.7	7.3	6.6

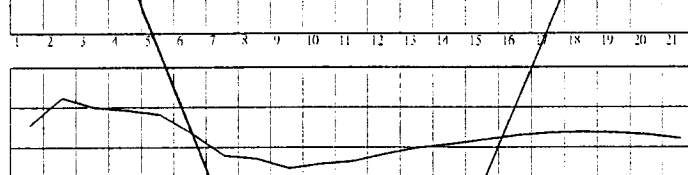
20.0

12.5

5.0

-2.5

-10.0



Pt. 5

1:100	2:125	3:160	4:200	5:250	6:315	7:400
7.1	3.5	2.8	3.9	6.5	5.8	3.1
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
4	2.2	4.9	2.8	3.7	4.8	5.3
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.0	6.7	7.2	7.2	7.1	6.6	5.9

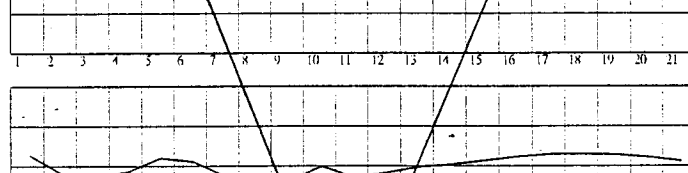
20.0

12.5

5.0

-2.5

-10.0



Pt. 6

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.4	8.1	6.6	5.9	6.4	6.0	3.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.3	4.8	7.5	6.2	8.4	5.8	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.9	7.6	8.0	8.0	7.9	7.4	6.8

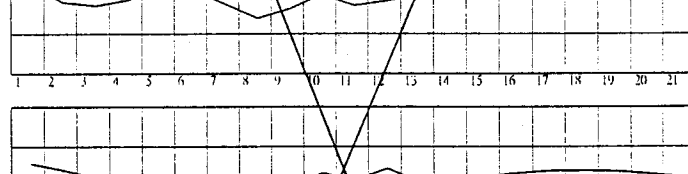
20.0

12.5

5.0

-2.5

-10.0



Pt. 7

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.5	9.5	8.7	6.7	8.2	8.0	6.2
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.5	1.0	3.4	2.6	3.8	5.1	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.7	7.3	7.7	7.8	7.7	7.2	6.6

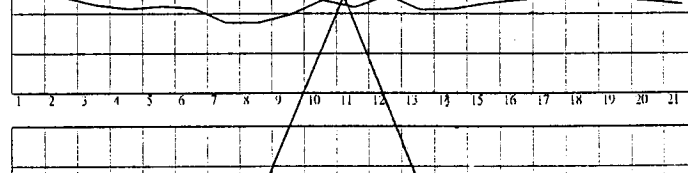
20.0

12.5

5.0

-2.5

-10.0



Pt. 8

1:100	2:125	3:160	4:200	5:250	6:315	7:400
5.4	3.4	2.3	4.3	5.4	6.9	4.1
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.0	1.7	3.3	3.1	3.9	5.0	5.7
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.6	7.2	7.6	7.7	7.4	6.9	6.3

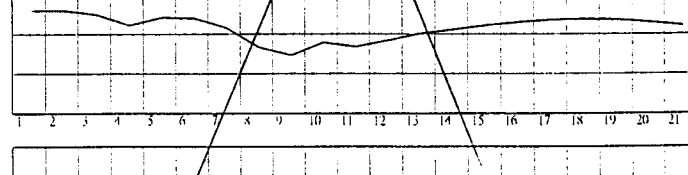
20.0

12.5

5.0

-2.5

-10.0



Pt. 9

1:100	2:125	3:160	4:200	5:250	6:315	7:400
5.7	5.0	4.9	5.4	7.0	5.3	4.5
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.0	2.5	3.1	4.0	4.8	5.5	5.8
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.8	7.5	7.9	8.0	7.9	7.5	6.8

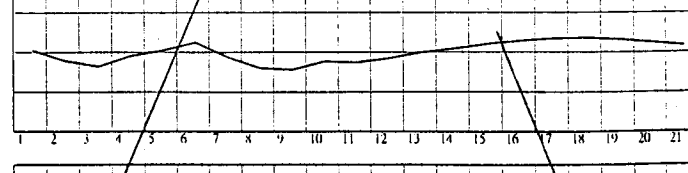
20.0

12.5

5.0

-2.5

-10.0



Pt. 10

1:100	2:125	3:160	4:200	5:250	6:315	7:400
6.2	11.7	7.9	7.1	8.4	8.0	3.9
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.3	3.2	2.7	4.2	4.0	4.8	5.6
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.4	7.1	7.5	7.6	7.5	7.0	6.3

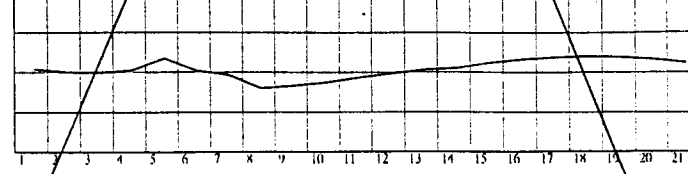
20.0

12.5

5.0

-2.5

-10.0



各測點均能音壓位準頻譜圖(Spectrum of Time Averaged Sound Pressure Level at each point)

型號(Sample Type): SPL光寶PSU(901130)

測試日期(Test Date):

2001/11/30 AM 10:15:07

測試編號(Test No.):

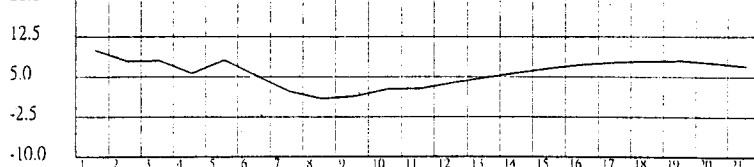
1

PA-1900-05D

Pt. 1

1:100	2:125	3:160	4:200	5:250	6:315	7:400
10.0	7.9	8.0	5.6	8.1	5.2	2.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
9	1.4	2.7	2.8	3.9	4.9	5.8
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.6	7.3	7.7	7.9	8.0	7.5	6.9

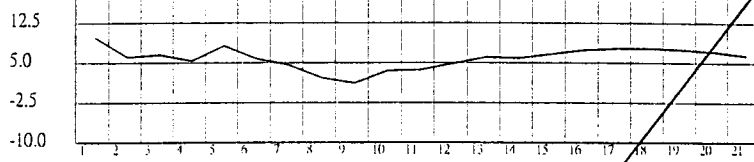
20.0



Pt. 2

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.8	6.1	6.5	5.4	8.2	5.8	4.6
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.2	1.2	3.5	3.7	4.9	6.1	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.7	7.4	7.7	7.7	7.5	7.1	6.4

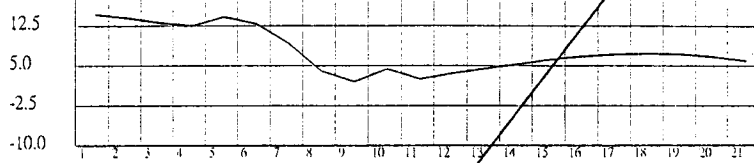
20.0



Pt. 3

1:100	2:125	3:160	4:200	5:250	6:315	7:400
14.7	14.0	13.1	12.5	14.2	12.9	9.2
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
4.0	2.0	4.4	2.5	3.6	4.5	5.3
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.2	6.8	7.2	7.3	7.2	6.7	6.0

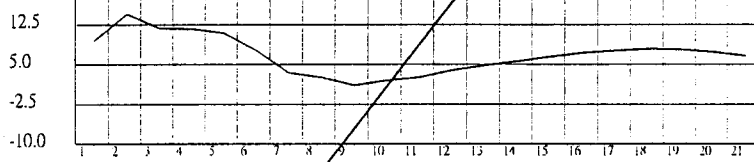
20.0



Pt. 4

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.5	14.5	11.8	11.7	10.9	7.7	3.4
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.6	1.1	2.0	2.6	3.9	4.8	5.6
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.5	7.2	7.6	7.9	7.8	7.3	6.6

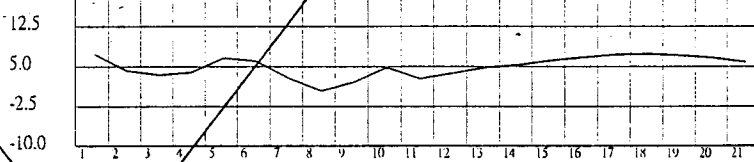
20.0



Pt. 5

1:100	2:125	3:160	4:200	5:250	6:315	7:400
7.3	4.2	3.4	3.9	6.6	6.0	2.8
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
4	2.1	4.8	2.7	3.7	4.8	5.3
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.1	6.7	7.2	7.3	7.0	6.6	5.3

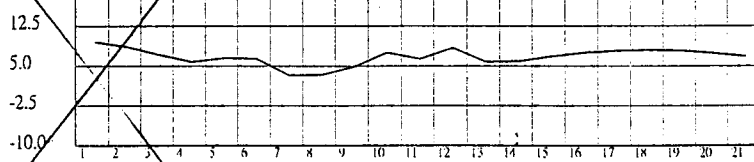
20.0



Pt. 6

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.5	8.6	7.1	5.8	6.5	6.4	3.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.4	4.9	7.5	6.3	8.4	5.8	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.8	7.5	7.9	8.0	7.9	7.4	6.8

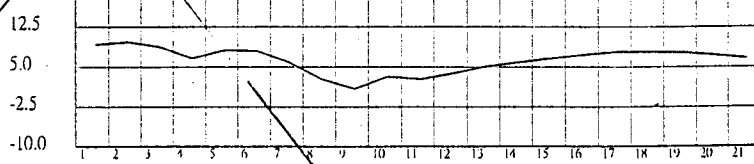
20.0



Pt. 7

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.2	9.7	8.8	6.6	8.1	8.0	5.9
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.7	9	3.2	2.7	3.8	5.1	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.6	7.3	7.8	7.8	7.7	7.2	6.6

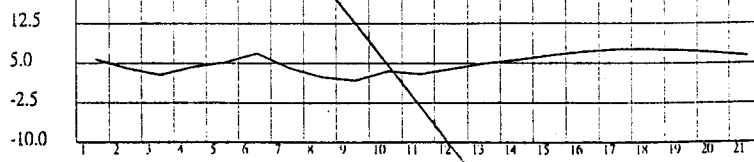
20.0



Pt. 8

1:100	2:125	3:160	4:200	5:250	6:315	7:400
5.8	4.0	2.8	4.3	5.2	6.0	4.1
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.4	1.8	3.5	3.0	4.0	5.0	5.7
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.5	7.2	7.6	7.6	7.4	7.0	6.4

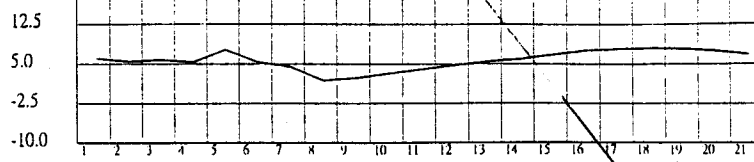
20.0



Pt. 9

1:100	2:125	3:160	4:200	5:250	6:315	7:400
6.1	5.5	5.8	5.4	7.7	5.4	4.5
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
1.9	2.4	3.2	4.0	4.8	5.5	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.8	7.6	7.9	8.0	7.9	7.5	6.8

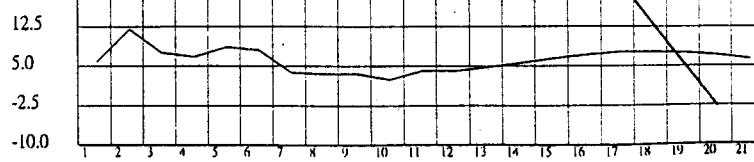
20.0



Pt. 10

1:100	2:125	3:160	4:200	5:250	6:315	7:400
5.8	12.0	7.5	6.7	8.6	8.0	3.7
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.5	3.5	2.4	4.1	4.0	4.8	5.6
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.4	7.1	7.6	7.6	7.5	7.0	6.3

20.0



聲功率測試報告(The Test Report of Sound Power Level)

待測物型號(Sample Type): SPL光寶PSU(901130)

測試日期(Test Date):

2001/11/30 AM 10:23:16

基本規格(Specification):

測試編號(Test No.):

3

量測物長(Length): 0.133 m

量測物寬(Width): 0.06 m

量測物高(Height): 0.03 m

測試條件(Test Condition):

麥克風距離(Mic. distance): 0.5 m

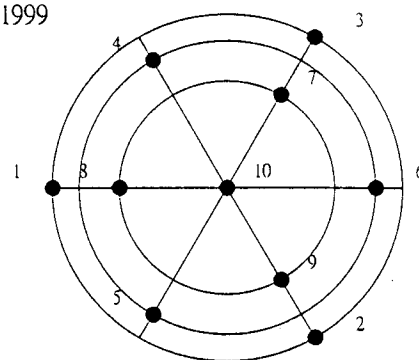
量測表面積(Area of Meas. Surface): 1.6 m²

量測時間(Measuring Time): 20 秒

依循標準ISO 7779-1999

位置示意圖:

(Mic. Positions)



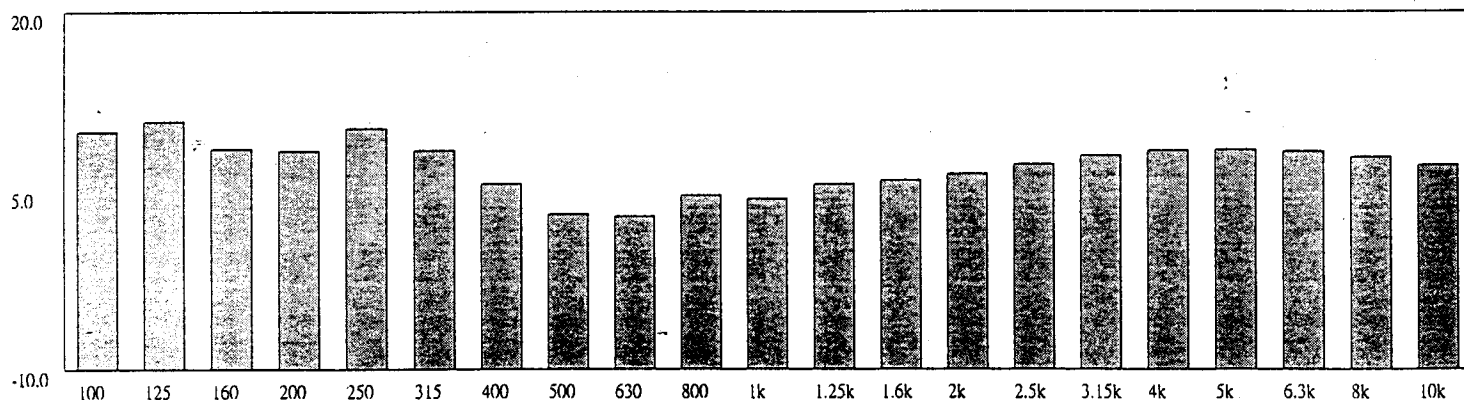
測試結果(Test Results) 單位(Unit: dB(A))

	第1點 Position 1	第2點 Position 2	第3點 Position 3	第4點 Position 4	第5點 Position 5	第6點 Position 6	第7點 Position 7	第8點 Position 8	第9點 Position 9	第10點 Position 10
測點背景音壓 Background Noise Level at each point	19.5	19.5	22.9	21.5	18.5	20.1	20.1	18.7	19.2	20.0
測點均能音壓位準 Time Averaged SPL at each point	19.5	19.5	22.8	21.2	18.5	20.2	19.9	18.7	19.2	20.0

計算聲功率位準(Calculation of the A-weighted Sound Power Level)

背景音壓位準平均值 Averaged Background Noise Level	均能聲壓位準平均值 Time Averaged SPL	量測表面積位準 Level of Measurement Surface	聲功率位準 Sound Power Level
20.2	20.1	2.0	20.8

聲功率位準頻譜圖(Sound Power Levels of 1/3 octave-band Spectrum)



頻率	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k
聲功率	9.9	10.8	8.5	8.3	10.2	8.4	5.6	3.1	2.9	4.7	4.4	5.6	5.9	6.4	7.3	8.0	8.3	8.5	8.3	7.8	7.2

說明(Remark)

90V Voltage, 60Hz (Max. Current)

PA-1700-04P

簽核人員(Signatory):

測試人員(Operator):

系統開發(Developer): 工業技術研究院機械工業研究所(MIRL/ITRI)

列印日期: 2001/11/30 AM 10:23:36

各測點均能音壓位準頻譜圖(Spectrum of Time Averaged Sound Pressure Level at each point)

型號(Sample Type): SPL光寶PSU(901130)

測試日期(Test Date):

2001/11/30 AM 10:23:16

測試編號(Test No.):

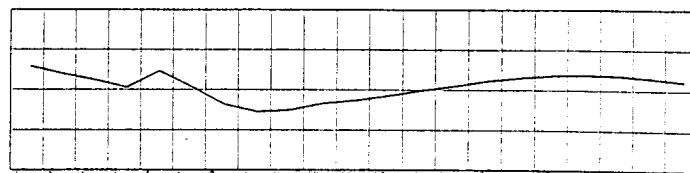
3

PA-1700-05D

Pt. 1

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.4	8.0	6.8	5.4	8.5	5.5	2.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
9	1.2	2.5	3.0	3.9	4.9	5.7
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.7	7.3	7.7	7.8	7.7	7.2	6.6

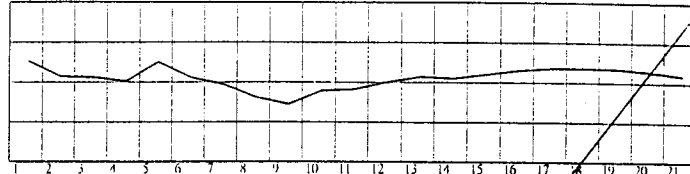
20.0



Pt. 2

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.8	6.1	6.0	5.2	8.8	5.9	4.6
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.2	9	3.4	3.7	5.1	6.1	5.8
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.6	7.3	7.7	7.7	7.6	7.1	6.4

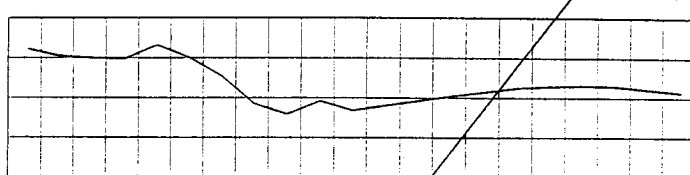
20.0



Pt. 3

1:100	2:125	3:160	4:200	5:250	6:315	7:400
14.2	12.9	12.5	12.4	14.9	12.6	9.1
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.9	1.9	4.4	2.6	3.6	4.5	5.4
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.1	6.9	7.2	7.3	7.2	6.6	6.0

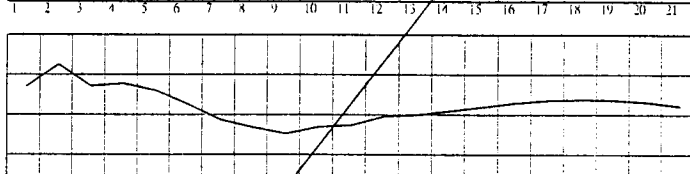
20.0



Pt. 4

1:100	2:125	3:160	4:200	5:250	6:315	7:400
10.2	14.4	10.3	10.8	9.5	6.9	4.0
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.6	1.4	2.7	3.0	4.7	4.9	5.7
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.5	7.2	7.7	7.8	7.7	7.3	6.6

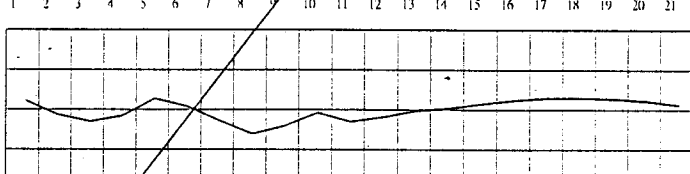
20.0



Pt. 5

1:100	2:125	3:160	4:200	5:250	6:315	7:400
6.7	4.0	2.7	3.8	7.0	5.6	2.9
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
4	1.9	4.4	2.7	3.6	4.8	5.3
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.1	6.8	7.2	7.2	7.0	6.6	5.9

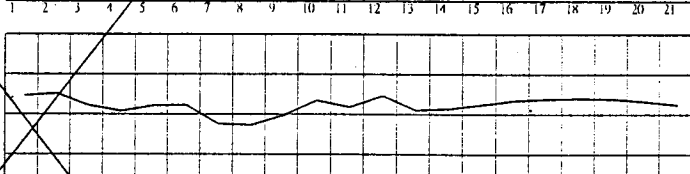
20.0



Pt. 6

1:100	2:125	3:160	4:200	5:250	6:315	7:400
8.5	8.9	6.6	5.6	6.6	6.7	3.2
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.0	4.8	7.6	6.3	8.5	5.8	6.0
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.8	7.6	7.9	8.0	7.9	7.4	6.8

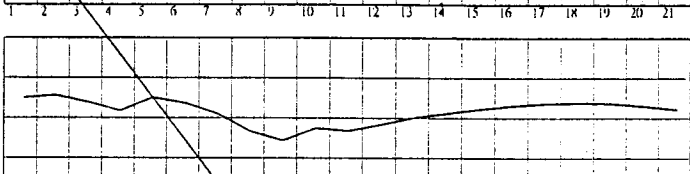
20.0



Pt. 7

1:100	2:125	3:160	4:200	5:250	6:315	7:400
8.7	9.2	7.9	6.3	8.8	7.7	5.8
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.5	8	3.1	2.6	3.8	5.1	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.7	7.3	7.7	7.8	7.7	7.2	6.6

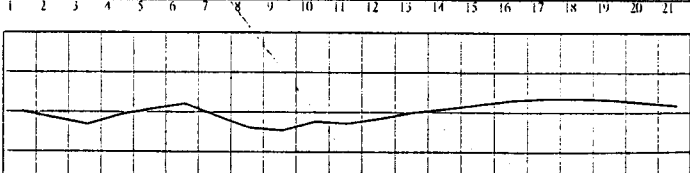
20.0



Pt. 8

1:100	2:125	3:160	4:200	5:250	6:315	7:400
5.1	3.9	2.7	4.5	5.6	6.6	4.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.1	1.6	3.3	2.9	3.9	5.0	5.7
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.5	7.3	7.6	7.6	7.4	6.9	6.3

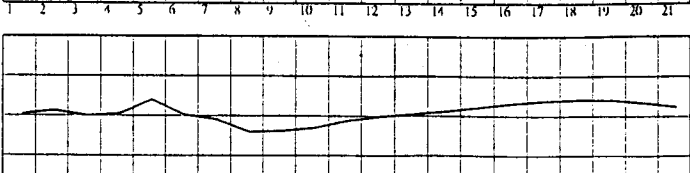
20.0



Pt. 9

1:100	2:125	3:160	4:200	5:250	6:315	7:400
5.3	6.0	5.0	5.4	8.0	5.2	4.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.0	2.2	2.8	4.1	4.9	5.4	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.7	7.4	7.9	8.1	8.0	7.5	6.8

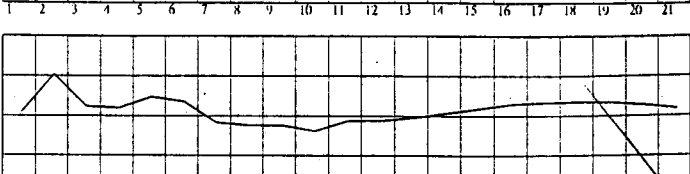
20.0



Pt. 10

1:100	2:125	3:160	4:200	5:250	6:315	7:400
5.7	12.8	6.7	6.5	8.6	7.7	3.7
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.2	3.2	2.1	4.0	4.1	4.7	5.6
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.4	7.2	7.5	7.6	7.5	7.0	6.3

20.0



聲功率測試報告(The Test Report of Sound Power Level)

待測物型號(Sample Type): SPL光寶PSU(901130)

測試日期(Test Date): 2001/11/30 AM 10:27:45

基本規格(Specification):

測試編號(Test No.): 4

量測物長(Length): 0.133 m

量測物寬(Width): 0.06 m

量測物高(Height): 0.03 m

測試條件(Test Condition):

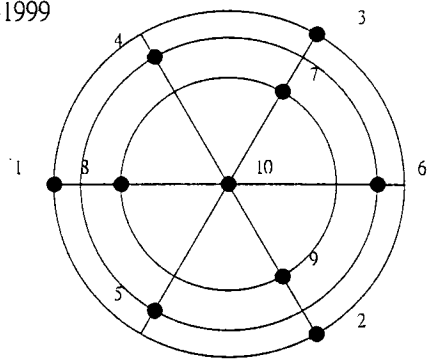
麥克風距離(Mic. distance): 0.5 m

量測表面積(Area of Meas. Surface): 1.6 m²

量測時間(Measuring Time): 20 秒

依循標準ISO 7779-1999

位置示意圖:
(Mic. Positions)



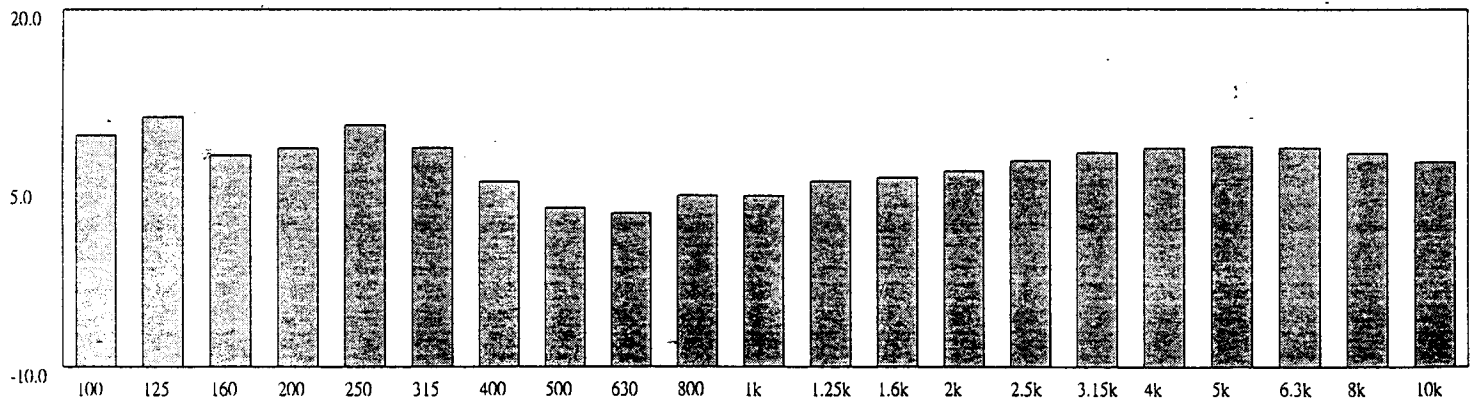
測試結果(Test Results) 單位(Unit: dB(A))

	第1點 Position 1	第2點 Position 2	第3點 Position 3	第4點 Position 4	第5點 Position 5	第6點 Position 6	第7點 Position 7	第8點 Position 8	第9點 Position 9	第10點 Position 10
測點背景音壓 Background Noise Level at each point	19.5	19.5	22.9	21.5	18.5	20.1	20.1	18.7	19.2	20.0
測點均能音壓位準 Time Averaged SPL at each point	19.6	19.4	22.8	21.1	18.4	20.1	19.7	18.7	19.3	20.0

計算聲功率位準(Calculation of the A-weighted Sound Power Level)

背景噪音位準平均值 Averaged Background Noise Level	均能聲壓位準平均值 Time Averaged SPL	量測表面積位準 Level of Measurement Surface	聲功率位準 Sound Power Level
20.2	20.1	2.0	20.8

聲功率位準頻譜圖(Sound Power Levels of 1/3 octave-band Spectrum)



頻率	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k
聲功率	9.5	11.0	7.8	8.3	10.3	8.4	5.6	3.4	2.9	4.5	4.4	5.7	5.9	6.5	7.3	8.0	8.4	8.5	8.4	7.9	7.2

說明(Remark)

240V Voltage, 50Hz (Max. Current) PA-1900-05D

簽核人員(Signatory):

測試人員(Operator):

系統開發(Developer): 工業技術研究院機械工業研究所(MIRL/ITRI)

列印日期: 2001/11/30 AM 10:28:39

各測點均能音壓位準頻譜圖(Spectrum of Time Averaged Sound Pressure Level at each point)

型號(Sample Type): SPL光寶PSU(901130)

測試日期(Test Date):

2001/11/30 AM 10:27:45

測試編號(Test No.):

4

PA-1900-05D

Pt. 1

1:100	2:125	3:160	4:200	5:250	6:315	7:400
8.8	8.4	6.5	5.3	8.4	5.3	2.7
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
1.5	1.9	2.8	3.4	4.1	5.2	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.8	7.5	7.8	8.0	8.3	7.9	7.0

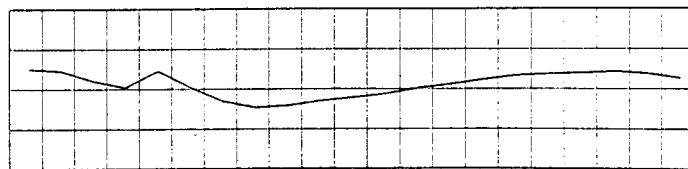
20.0

12.5

5.0

-2.5

-10.0



Pt. 2

1:100	2:125	3:160	4:200	5:250	6:315	7:400
8.2	6.1	4.7	4.9	8.6	5.7	4.4
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.2	9	3.3	3.9	4.9	6.2	5.9
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.7	7.3	7.7	7.7	7.6	7.1	6.4

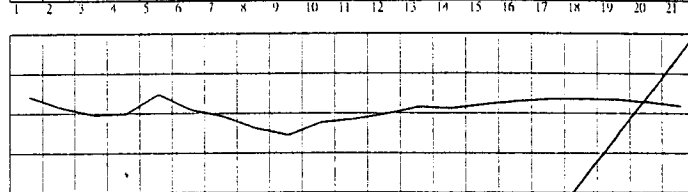
20.0

12.5

5.0

-2.5

-10.0



Pt. 3

1:100	2:125	3:160	4:200	5:250	6:315	7:400
13.9	13.3	11.6	12.6	15.2	12.8	9.0
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
4.1	1.8	4.4	2.5	3.6	4.5	5.4
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.2	6.9	7.2	7.4	7.2	6.7	6.0

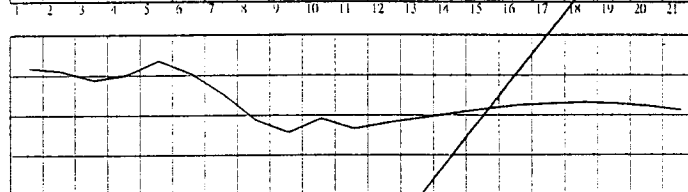
20.0

12.5

5.0

-2.5

-10.0



Pt. 4

1:100	2:125	3:160	4:200	5:250	6:315	7:400
9.7	14.5	9.9	10.7	9.6	7.0	4.0
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.6	1.5	1.8	3.0	4.6	5.0	5.7
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.4	7.2	7.7	7.9	7.7	7.3	6.6

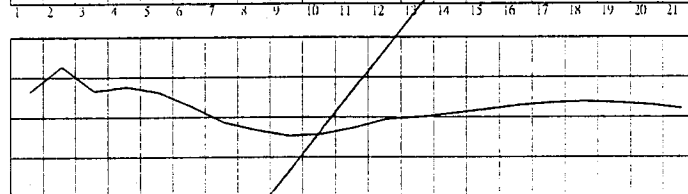
20.0

12.5

5.0

-2.5

-10.0



Pt. 5

1:100	2:125	3:160	4:200	5:250	6:315	7:400
6.2	4.4	2.3	3.9	7.1	5.6	2.9
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3	1.7	3.9	2.6	3.8	4.8	5.2
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.0	6.8	7.1	7.2	7.0	6.5	5.9

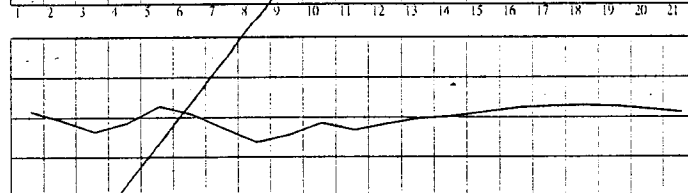
20.0

12.5

5.0

-2.5

-10.0



Pt. 6

1:100	2:125	3:160	4:200	5:250	6:315	7:400
8.1	9.1	5.9	5.7	7.0	6.4	3.4
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.4	4.8	7.3	6.2	8.5	5.7	6.0
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.9	7.6	7.9	8.0	7.9	7.5	6.8

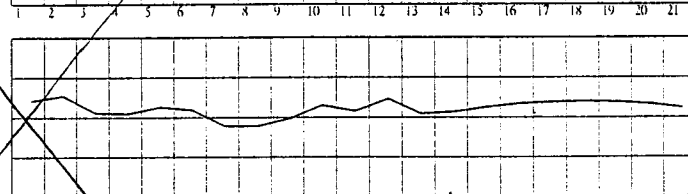
20.0

12.5

5.0

-2.5

-10.0



Pt. 7

1:100	2:125	3:160	4:200	5:250	6:315	7:400
8.2	9.5	6.9	6.0	7.9	7.2	5.9
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.7	7	2.5	2.6	3.8	5.1	5.8
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.7	7.4	7.7	7.8	7.7	7.2	6.6

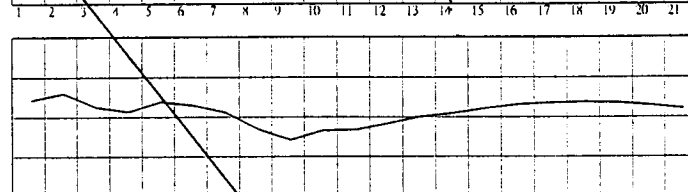
20.0

12.5

5.0

-2.5

-10.0



Pt. 8

1:100	2:125	3:160	4:200	5:250	6:315	7:400
4.6	4.4	2.2	4.3	5.7	6.5	4.4
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.4	1.5	2.9	2.9	4.0	5.1	5.8
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.6	7.2	7.6	7.7	7.4	7.0	6.3

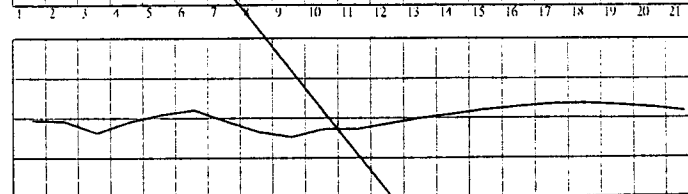
20.0

12.5

5.0

-2.5

-10.0



Pt. 9

1:100	2:125	3:160	4:200	5:250	6:315	7:400
4.8	5.7	4.4	5.4	8.3	5.7	4.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.4	2.3	2.9	4.1	4.9	5.5	6.0
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.8	7.5	7.9	8.1	7.9	7.5	6.9

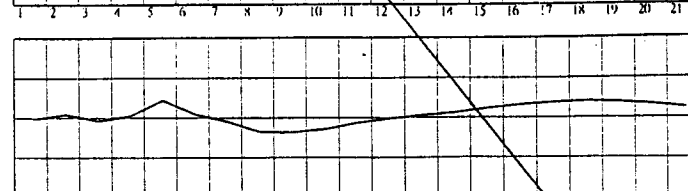
20.0

12.5

5.0

-2.5

-10.0



Pt. 10

1:100	2:125	3:160	4:200	5:250	6:315	7:400
5.1	12.6	6.2	6.8	8.9	7.7	3.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.5	3.2	2.4	4.2	4.1	4.7	5.5
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.4	7.2	7.5	7.7	7.5	7.1	6.3

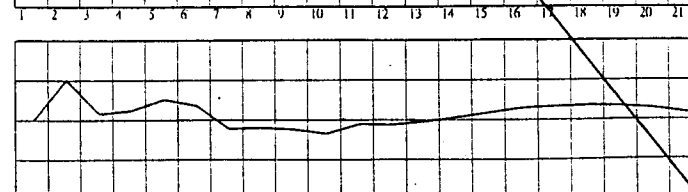
20.0

12.5

5.0

-2.5

-10.0



聲功率測試報告(The Test Report of Sound Power Level)

待測物型號(Sample Type): SPL光寶PSU(901130)

測試日期(Test Date):

2001/11/30 AM 10:30:53

基本規格(Specification):

測試編號(Test No.):

5

量測物長(Length): 0.133 m

量測物寬(Width): 0.06 m

量測物高(Height): 0.03 m

測試條件(Test Condition):

麥克風距離(Mic. distance): 0.5 m

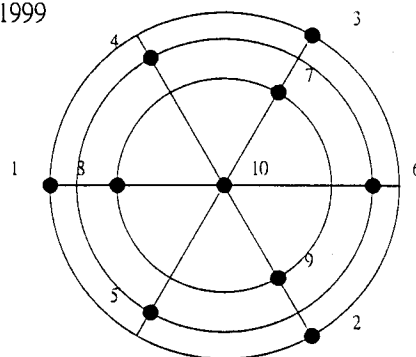
量測表面積(Area of Meas. Surface): 1.6 m²

量測時間(Measuring Time): 20 秒

依循標準ISO 7779-1999

位置示意圖:

(Mic. Positions)



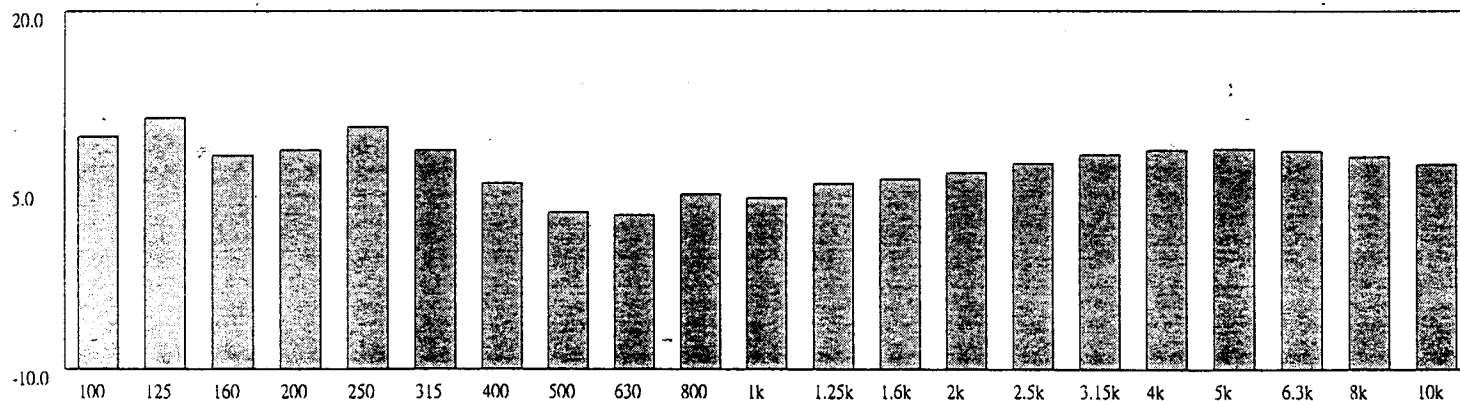
測試結果(Test Results) 單位(Unit:dB(A))

	第1點 Position 1	第2點 Position 2	第3點 Position 3	第4點 Position 4	第5點 Position 5	第6點 Position 6	第7點 Position 7	第8點 Position 8	第9點 Position 9	第10點 Position 10
測點背景音壓 Background Noise Level at each point	19.5	19.5	22.9	21.5	18.5	20.1	20.1	18.7	19.2	20.0
測點均能音壓位準 Time Averaged SPL at each point	19.5	19.4	22.7	21.3	18.4	20.2	19.8	18.7	19.2	20.0

計算聲功率位準(Calculation of the A-weighted Sound Power Level)

背景噪音位準平均值 Averaged Background Noise Level	均能聲壓位準平均值 Time Averaged SPL	量測表面積位準 Level of Measurement Surface	聲功率位準 Sound Power Level
20.2	20.1	2.0	20.8

聲功率位準頻譜圖(Sound Power Levels of 1/3 octave-band Spectrum)



頻率	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k
聲功率	9.5	11.1	7.9	8.4	10.3	8.4	5.6	3.2	2.9	4.7	4.4	5.6	5.9	6.4	7.3	8.0	8.4	8.5	8.3	7.8	7.2

說明(Remark)

240 Voltage, 50 Hz (Min. Current) *PA-1900-015*

簽核人員(Signatory):

測試人員(Operator):

系統開發(Developer): 工業技術研究院機械工業研究所(MIRL/ITRI)

列印日期: 2001/11/30 AM 10:31:43

各測點均能音壓位準頻譜圖(Spectrum of Time Averaged Sound Pressure Level at each point)

型號(Sample Type): SPL光寶PSU(901130)

測試日期(Test Date):

2001/11/30 AM 10:30:53

測試編號(Test No.):

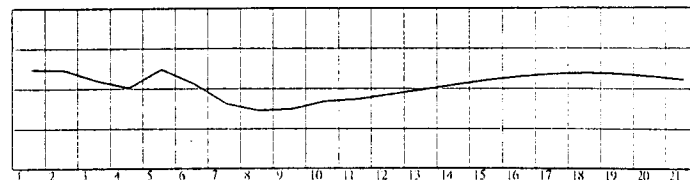
5

PA-190-05D

Pt. 1

1:100	2:125	3:160	4:200	5:250	6:315	7:400
8.6	8.5	6.5	5.2	8.6	5.9	2.2
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
9	1.2	2.6	3.0	3.9	4.8	5.8
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.6	7.3	7.7	7.9	7.7	7.3	6.7

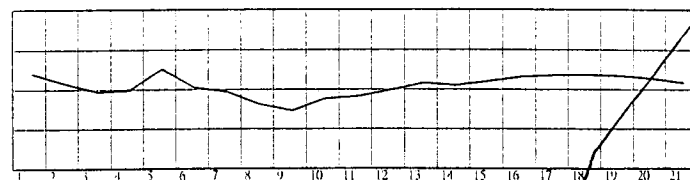
20.0



Pt. 2

1:100	2:125	3:160	4:200	5:250	6:315	7:400
8.1	6.2	4.6	4.9	8.9	5.4	4.6
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.2	1.0	3.3	3.7	4.9	6.2	5.8
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.6	7.4	7.7	7.8	7.6	7.1	6.3

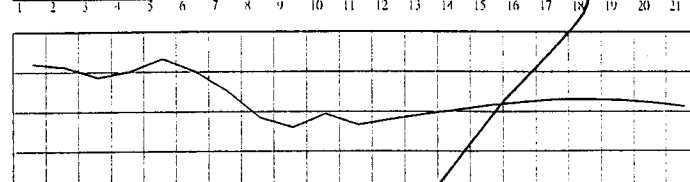
20.0



Pt. 3

1:100	2:125	3:160	4:200	5:250	6:315	7:400
14.0	13.4	11.5	12.6	15.0	12.6	8.9
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.9	2.0	4.6	2.5	3.6	4.5	5.3
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.2	6.8	7.3	7.8	7.2	6.7	6.0

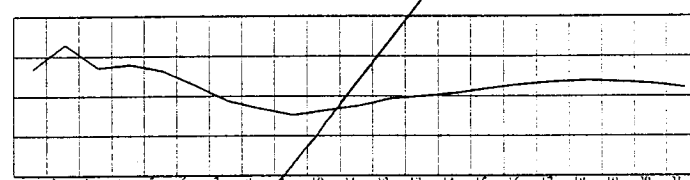
20.0



Pt. 4

1:100	2:125	3:160	4:200	5:250	6:315	7:400
10.1	14.7	10.3	10.9	9.7	7.0	4.1
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.6	1.4	2.3	3.1	4.5	5.0	5.6
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.5	7.2	7.7	7.9	7.7	7.3	6.6

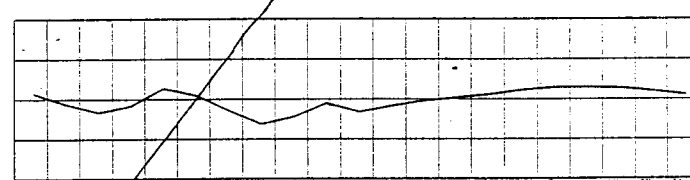
20.0



Pt. 5

1:100	2:125	3:160	4:200	5:250	6:315	7:400
6.1	4.1	2.5	3.7	7.0	5.7	2.9
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3	1.7	4.2	2.6	3.7	4.7	5.3
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
5.9	6.7	7.2	7.2	7.1	6.5	5.8

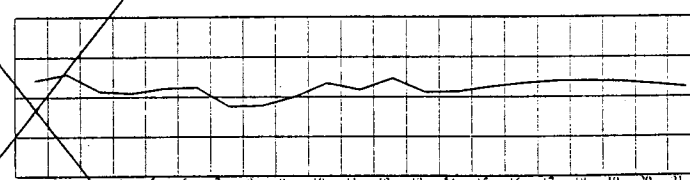
20.0



Pt. 6

1:100	2:125	3:160	4:200	5:250	6:315	7:400
8.1	9.3	6.1	5.7	6.6	6.8	3.2
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.3	5.0	7.6	6.3	8.5	5.9	6.0
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.9	7.6	8.0	8.0	7.9	7.4	6.8

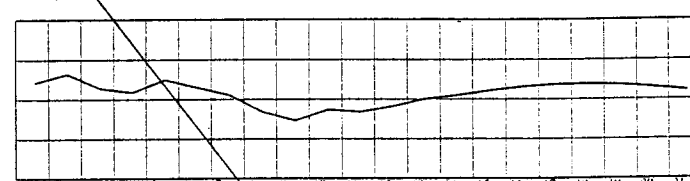
20.0



Pt. 7

1:100	2:125	3:160	4:200	5:250	6:315	7:400
8.2	9.8	7.1	6.3	8.7	7.2	5.8
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.6	1.0	3.0	2.6	3.7	5.1	5.8
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.7	7.4	7.8	7.9	7.7	7.2	6.6

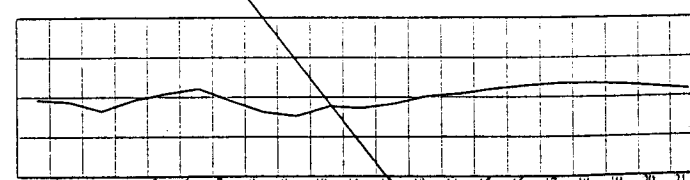
20.0



Pt. 8

1:100	2:125	3:160	4:200	5:250	6:315	7:400
4.5	4.1	2.4	4.4	5.7	6.6	4.3
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.2	1.5	3.3	3.0	3.8	5.2	5.7
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.6	7.2	7.6	7.6	7.4	6.9	6.3

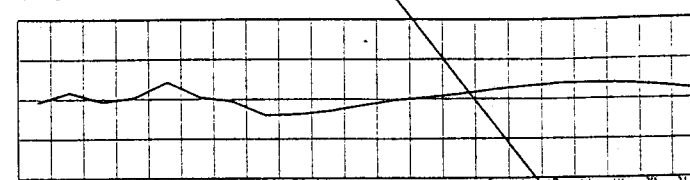
20.0



Pt. 9

1:100	2:125	3:160	4:200	5:250	6:315	7:400
4.4	6.3	4.5	5.5	8.2	5.4	4.6
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
2.0	2.2	2.8	3.9	4.9	5.4	6.0
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.8	7.5	8.0	8.0	7.9	7.5	6.8

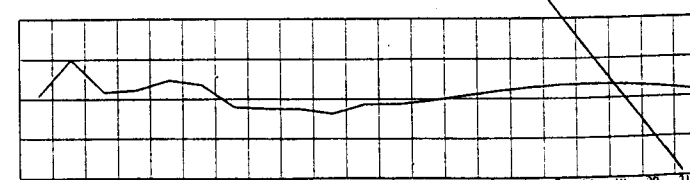
20.0



Pt. 10

1:100	2:125	3:160	4:200	5:250	6:315	7:400
5.5	12.5	6.3	6.7	8.6	7.7	3.5
8:500	9:630	10:800	11:1K	12:1.25K	13:1.6K	14:2K
3.2	3.1	2.2	4.0	4.0	4.7	5.6
15:2.5K	16:3.15K	17:4K	18:5K	19:6.3K	20:8K	21:10K
6.4	7.1	7.6	7.7	7.5	7.0	6.3

20.0



ELECTRONICS TESTING CENTER(ETC), TAIWAN



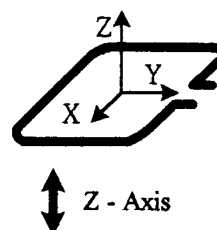
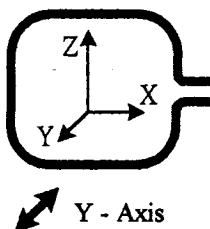
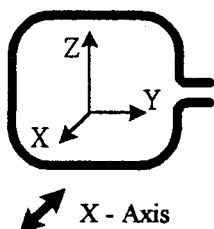
EMC TESTING DEPARTMENT (EMS SECTION)
NO. 8 LANE 29, WEN-MING RD., LO-SHAN TSUN,
KUI-SHAN HSIANG, TAOYUAN HSIEN, TAIWAN, R.O.C

TEL: (03)3280026#571,573
FAX: (03)3276188

Power frequency magnetic fields immunity test

Page: 1 / 1

Applicant	LITE-ON ELECTRONICS, INC.		Application No.		
Device	S.P.S	Model No.	PA-1900-05D	Test Dated	Jan. 03, 2002
Test Specification	☒ IEC 61000-4-8:1993 ☐ EN 61000-4-8:1993 ☐ Customer's				
Test Equipment					
Magnetic field immunity test system\FCC\F-1000-4-8-G 125A/1000A ELF Magnetic field meter\Holaday\HI-3627 DC/AC clamp meter					
Climatic Condition	Ambient Temperature : <u>26</u> °C Relative Humidity : <u>59</u> %RH Atmospheric Pressure : <u>986</u> mbar				
Power Supply System	AC Power : <u>230</u> Vac <u>50</u> Hz				
Test Set-up	☒ Table-top Equipment ☐ Floor-standing Equipment				
Operating Conditions of The Device	Full Load				



Magnetic field frequency : <u>50</u> Hz		Continuous magnetic field strength : <u>3</u> A/m	
Magnetic field direction		Testing result :	
X - Axis		✓	
Y - Axis		✓	
Z - Axis		✓	

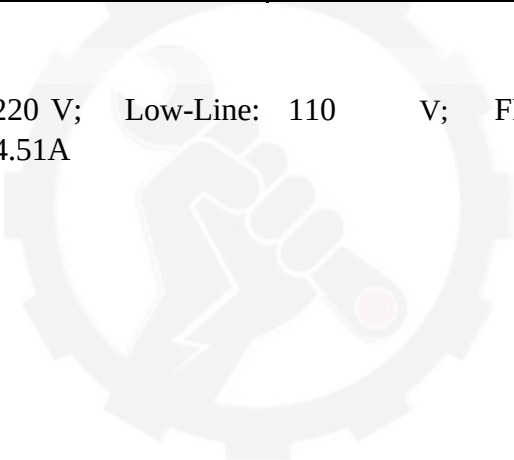
Note : "N" means the EUT function was correct during the test.

This Test Record is not allowed for formal declaration without the allowance of the test laboratory.
The internal designation and/or modification of the EUT is not verified and recorded in this test.

Note : 1. The results of the Test Record relate only to the items tested.
2. The Test Record shall not be reproduced except in full , without the written approval of ETC.

Tested by : Ken

Checked by : _____

DESIGN QUALIFICATION CIRCUIT STRUCTURE REPORT		FILE NO. : 010996
1/4 TEST	1/4 TEST	DATE : 2001/12/29
TEST ITEM : BURN IN TEST		MODEL NO. : PA-1900-05D
QUANTITY : 4 EA		SER. NO. : 1 ~ 4
1. Test Condition:  INPUT: Hi-Line: 220 V; Low-Line: 110 V; FREQUENCY: 60 Hz LOAD: FL : +20V@4.51A TEMP : 40 °C TIME : 168 hours 2. Record: PASS NOTE : 1. PCB : X5 2. Sample : 05D(A05) 3. Part List : 0D		
CONCLUSION: 1/4 PASS 1/4 NG		
PREPARED BY: Annie Shih	CHECKED BY: Kevin Cheng	APPROVED BY: Roger Huang

DESIGN QUALIFICATION CIRCUIT STRUCTURE REPORT				FILE NO. : 00023	
$\frac{1}{4}$ £ \ TEST $\frac{1}{4}$ £] TEST $\frac{1}{4}$ CURRENT				DATE : 2002/1/8	
TEST ITEM : STRIFE TEST				MODEL NO. : PA-1900-05D	
QUANTITY : 2				SER. NO. :	

$\square$ @ $\frac{1}{4}$ ELine Voltage Test
 a. Load: +20V@4.51A
 b. Test Record:

Start Input voltage	Up voltage Step	Stay Time	Final Input voltage	Description Circumstance	Result
265Vac	5Vac	3min	280V	Normal	OK

$\square$ G $\frac{1}{4}$ ELoad Current Test
 a. Input Voltage: 90Vac/47Hz
 b. Every steps shall be stay 3minutes and continue observe.
 c. Test Record:

Load	Load Condition	Description Circumstance	Result
FL1	+20V@4.51A	Normal	OK
×1.1	+20V@4.961A	Normal	OK
×1.2	+20V@5.412A	Normal	OK
×1.3	+20V@5.863A	OCP	REF

$\square$ T $\frac{1}{4}$ EHI-POT Test
 a. The test voltage shall be applied between the primary (AC line and neutral) and secondary.
 b. Test Record:

Start Voltage	Up voltage Step	Dwell Time	Final hi-pot voltage	Description Circumstance	Result
1800Vac	50Vac	3sec	3700Vac	Noise	REF

$\yen$ $\frac{1}{4}$ ETHERMAL Test
 a. Input Voltage: 90 Vac; b. Load: 4.51 A
 c. Test Record:

Load	Start temp. of ambient	Up temp. Step	Dwell Time	Final Temp. of Ambient	Description Circumstance	Result
FL1	40 ¢ J	5 ¢ J	30min	60 ¢ J	OTP	OK

NOTE :

- 1.PCB : X5
- 2.Sample : 05D(A05)
- 3.Part List : 0D

CONCLUSION: $\frac{1}{4}$ PASS $\frac{1}{4}$ NG

PREPARED BY:	CHECKED BY:	APPROVED BY:
--------------	-------------	--------------

DESIGN QUALIFICATION MECHANICAL TEST REPORT		FILE NO. : 010864
√ TEST	1/4 TEST	1/4 CURRENT
TEST ITEM : Mechanical Test		DATE : 13th-Nov.-2001
QUANTITY : 35	SER. NO. :	
1. Vibration Test: 1-A. Test condition: Operating : Sine wave excited, 0.25G maxium acceleration. 10 to 250 Hz, swept at one octave per minute. 15 minutes dwell at resonant points, where resonance is define as those exciting frequencies at which the device under test experience excursions two times larger than non-resonant excursion. And must be along three mutually perpendicular axes. Non-operating : Sine wave excited, 1.0G maxium acceleration. 10 to 250 Hz, swept at one octave per minute. 15 minutes dwell at resonant points, where resonance is define as those exciting frequencies at which the device under test experience excursions two times large than non-resonant excursion. And must be along three mutually perpendicular axes. 1-B. Result: 1. The mechanical & electrical function was fitted the spec, and no defect was found. 2. Shock Test 2-A. Test condition: Non-operating : Three shocks of 40G, 10 mini seconds, +/-5 msec, half-sine ,one shock input in each of three mutually perpendicular axes. Operating : Three shocks of 10G, 11 mini seconds, +/-5 msec, half-sine ,one shock input in each of three mutually perpendicular axes. 2-B. Result: 1. The mechanical & electrical function was fitted the spec, and no defect was found. 3. Drop Test: 3-A. Test condition: The power supply must survive at a 36" drop on each face and corner of shipping container. 3-B. Result: 1. The electrical & mechanical function was fitted the spec, and no defect was found. 4. Summary: 1. The mechanical & electric function was fitted the spec, and no defect was found.		
CONCLUSION: √ PASS 1/4 NG		
PREPARED BY: N T SHU	CHECKED BY: Annie Shin	APPROVED BY: Roger Huang

DESIGN QUALITY MECHANICAL REPORT		FILE NO. : 010972																	
✓ 1/4 TEST ; 1/4 TEST ; 1/4 CURRENT		DATE : 12-21-01'																	
TEST ITEM : DROP TEST		MODEL NO. : PA-1900-05D																	
QUANTITY : 2 units		PRODUCT REV. : A04 PCB REV.: X5																	
1.DROP TEST 1-1.TEST CONDITION: 1. Sample unit keeps 100 CM away from the earth then free falls into concrete plane. 2. Drop sequence : 10 items (one corner, three edge, six face) 1-2.RESULT: <table border="1"> <thead> <tr> <th>S/N No.:</th> <th>Case Source</th> <th>Defect Finding</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>1X001450C</td> <td>ALLEN</td> <td>Case cracked, Led lamp broken</td> <td>N.G</td> </tr> <tr> <td>1X001490C</td> <td>ALLEN</td> <td>L010 core broken, Led lamp broken.</td> <td>N.G</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				S/N No.:	Case Source	Defect Finding	Result	1X001450C	ALLEN	Case cracked, Led lamp broken	N.G	1X001490C	ALLEN	L010 core broken, Led lamp broken.	N.G				
S/N No.:	Case Source	Defect Finding	Result																
1X001450C	ALLEN	Case cracked, Led lamp broken	N.G																
1X001490C	ALLEN	L010 core broken, Led lamp broken.	N.G																
1-3. REMARK: The drop retesting result is O.K for 2 corrected units as below action 1. Adding inside "Radius" of plastic case . 2. Improving uniform thickness of Led lamp																			
CONCLUSION: ✓ 1/4 PASS ; 1/4 NG ; 1/4 REFERENCE																			
PREPARED BY: W.H.LIN		CHECKED BY: Annie Shi	APPROVED BY: Roger Huang																

DESIGN QUALIFICATION MECHANICAL TEST REPORT		FILE NO. : 010898														
√ ₄ TEST	√ ₄ TEST	√ ₄ CURRENT														
TEST ITEM : Mechanical Test (Strife Test)		DATE : 19-Nov.-2001														
QUANTITY : 4	SER. NO. :															
1. Vibration test 1-A. Test condition: 10 ~ 500 Hz, random wave, start at 10 Grms, X, Y, Z axis, 15 minutes per axis. 2.5 Grms per 15minutes. 1-B. Result: <table> <tr> <td>10.0 Grms</td> <td>Passed</td> </tr> <tr> <td>12.5 Grms</td> <td>Passed</td> </tr> <tr> <td>15.0 Grms</td> <td>Passed</td> </tr> <tr> <td>17.5 Grms</td> <td>Passed</td> </tr> </table> Remark: Due to the machine function limit, that item was stopped at 17.5 Grms.			10.0 Grms	Passed	12.5 Grms	Passed	15.0 Grms	Passed	17.5 Grms	Passed						
10.0 Grms	Passed															
12.5 Grms	Passed															
15.0 Grms	Passed															
17.5 Grms	Passed															
2. Shock test 2-A. Test condition: Half sine wave, start at 40 G, X, Y, Z axis, two direction each time. Test step: 10 G. 2-B. Result: <table> <tr> <td>40G</td> <td>Passed</td> </tr> <tr> <td>50G</td> <td>Passed</td> </tr> <tr> <td>60G</td> <td>Passed</td> </tr> <tr> <td>70G</td> <td>Passed</td> </tr> <tr> <td>80G</td> <td>Passed</td> </tr> <tr> <td>90G</td> <td>Passed</td> </tr> <tr> <td>100G</td> <td>Passed</td> </tr> </table> Remark: Due to the machine function limit, that item was stopped at 100 G.			40G	Passed	50G	Passed	60G	Passed	70G	Passed	80G	Passed	90G	Passed	100G	Passed
40G	Passed															
50G	Passed															
60G	Passed															
70G	Passed															
80G	Passed															
90G	Passed															
100G	Passed															
CONCLUSION: √ ₄ PASS √ ₄ NG																
PREPARED BY: N T SHU	CHECKED BY: Annie Shin	APPROVED BY: Roger Huang														

ISSUED TO:

QLS-MP-C017



Quality Notice

Power - QRA

DAWAS QRA

文編: QN-2002-008

發文日期: 02/19/2002

受文者: 技資中心

副本送: 製工處 / 製程品管 / P&T

文件主旨: PA-1900-05D 機種品質管理計劃發行

詳細內容:

1. 發行 PA-1900-05D 的 " 檢驗作業指導書 " REV : A 和
" 出貨檢驗程式 " REV : A 。
2. 各單位對內容若有意見, 請隨時撥冗指正。

PREPARED BY:

石碩怡 2002.2.19.

APPROVED BY:

黃昌憲 2002.2.19.

QUALITY INSPECTION CRITERIA

MODEL NO.: PA-1900-05D

CUSTOMER: DELL

DATE: 2002 , 2 , 19

CONTENTS:

1. Workmanship inspection item

REV.: A

2. Outgoing ATE program

REV.: A

PREPARED BY: Annie Shih

CHECKED BY: X

APPROVED BY: Roger Huang Lee

一. 檢驗內容:

NO.	檢驗項目	檢驗內容
1	外觀尺寸及人工作業 Outside Structure & Workmanship	1.外箱： a.內部尺寸：長:370mm,寬:305mm,高:270mm 厚度：8mm 誤差 +3 , -0 mm。 b.標示機種不正確(含條碼): PA-1900-05D c.沒有安規標示。 d.紙箱破孔大於10mm。 e.外觀髒污。 f.紙箱潮濕。 g.紙板與紙楞分離。 h.封箱膠帶黏貼不確實。 2.數量： a.電源供應器數量不足。 b.電源線數量不足。 3.塑膠袋： a.破孔或刮傷大於15mm。 b.漏裝。 c.沒用膠帶封口。 d.膠帶封口位置不正確。 4.隔板： a.斷裂。 b.水平或垂直隔板遺落。 c.漏裝。 d.紙板潮濕。 e.紙板與紙楞分離。 5.紙板： a.漏裝。 b.紙板潮濕。 c.紙板破損。 6.使用手冊： a.漏裝。 b.內容錯誤。 c.髒污及潮濕。 7.外殼： a.尺寸：請參閱外形圖 長: 110.0 +/- 0.5mm, 寬: 50.0 +/- 0.5mm, 高: 28.0 +/- 0.5mm,

一. 檢驗內容:

NO.	檢驗項目	檢驗內容
		b.顏色：黑色 c.上下殼接合縫：線條彎曲 縫隙大小差距大於0.3mm d.超音波熔接： 上下殼段差大於0.2mm 接合縫內溢膠 有大於0.3mm毛邊 外殼變形 外殼不均勻發亮 e.刮傷：任何面刮痕大於2mm f.凹痕：有任何凹痕，塑料不足 g.上面及側面有接合線 h.顏色不均勻 I.表面不潔
		8.輸入插座： a.顏色不符。 b.接頭部份金屬生鏽。 c.鬆動、破損、變形。
		9.輸出線： a.尺寸：請參閱外形圖。 b.顏色：黑色 c.線材未綁附束線帶。 d.接頭生鏽，燒傷，變形，堵塞，沾膠，斷裂。 e.線檔與外殼有大於0.5mm縫隙。 f.線材壓傷，刮傷，變形，破皮。
		10.標籤： a.標籤內容錯誤。 b.主標籤、BAR CODE、日期或版本標籤印刷模糊，不完整。 c.標籤漏貼。 d.不可殘缺、破損、變形、浮起。 e.標籤方向不可顛倒。 f.標籤黏貼位置錯誤。

PA-1900-05D OUTGOING TEST PROGRAM LIST

SEQ	TEST NAME	TEST CONTENT	NOTE
1	TURN ON & SEQ.	TURN ON TIME	
2	LINE REG.	LINE REGULATION AND RIPPLE & NOISE	MAX. LOAD
3	LINE REG.	LINE REGULATION AND RIPPLE & NOISE	MIN. LOAD
4	SHORT CIRCUIT	SHORT CIRCUIT PROTECTION	
5	HOLD ON ADJ.	RESET	
6	OVP/UVF	OVER VOLTAGE PROTECTION	
7	HOLD ON ADJ.	RESET	
8	OLP	OVER CURRENT PROTECTION	
9	HOLD ON ADJ.	RESET	
10	HOLD UP & SEQ.	HOLD UP TIME	
11	TURN ON & SEQ.	TURN ON TIME	
12	LINE REG.	LINE REGULATION AND RIPPLE & NOISE	MAX. LOAD
13	LINE REG.	LINE REGULATION AND RIPPLE & NOISE	MIN. LOAD
14	SHORT CIRCUIT	SHORT CIRCUIT PROTECTION	
15	HOLD ON ADJ.	RESET	
16	OVP/UVF	OVER VOLTAGE PROTECTION	
17	HOLD ON ADJ.	RESET	
18	OLP	OVER CURRENT PROTECTION	
19	HOLD ON ADJ.	RESET	
20	HOLD UP & SEQ.	HOLD UP TIME	

© SEQ 1~10 are low line and SEQ. 11~20 are high line.

CHROMA 6000 POWER SUPPLY AUTOMATIC TEST SYSTEM (Version 7.01)

Model name :1900-05d
MM/DD/YY :02192002

Serial No. :0
Start Time :
End Time :

Q 1 : TURN ON &SEQ. (RISE)

Vin (V)= 115.000 Fin (Hz)= 60.0
PHon (mS)= 0.000 Vin Port = 1 UUT OFF-S= 3.000

O/P #	Load Name	I/R Amp/ohm	Rise (A/us)	Von (V)	Va (V)	Vb (V)
1	+20V	4.510	0.100	14.000	0.000	18.900

O/P #	Start trigger	Start active	End trigger	End active
1	7	H	8	H

O/P #	Ton-ms max	Ton-ms min	Ton-ms Reading	Vos Reading
1	4000.000	*	-----	-----

(Tref O/P # *) MAX MIN READING/+ READING/-

Inrush(A): * * ----- -----
Tds (mS): * * ----- -----
Tdl (mS): * * ----- -----
Tdls (mS): * * ----- -----

SEQ 2 : LINE REG. (MAX.)

Vin Port1= 1 Vin Port2= 1 Vin Port3= 1
Vin-1 (V)= 90.000 Vin-2 (V)= 110.000 Vin-3 (V)= 132.000
Fin-1 (Hz)= 47.0 Fin-2 (Hz)= 60.0 Fin-3 (Hz)= 63.0
Delay (S)= 1.000 Meas. (S)= 1.000

O/P #	I/R Amp/ohm	Slew rate (A/us)	dV+ max	dV- max	dV-21 Reading	dV-31 Reading
1	4.510	0.100	*	*	-----	-----

O/P #	Vdc max	Vdc min	Vdc-1 Reading	Vdc-2 Reading	Vdc-3 Reading
1	20.600	18.900	-----	-----	-----

O/P #	Noise LPF KHz/Hz	Vpp max	Vpp-1 Reading	Vpp-2 Reading	Vpp-3 Reading
1	20M	0.500	-----	-----	-----

SEQ 3 : LINE REG. (MIN.)

Vin Port1= 1 Vin Port2= 1 Vin Port3= 1
Vin-1 (V)= 90.000 Vin-2 (V)= 47.000 Vin-3 (V)= 132.000
Fin-1 (Hz)= 47.0 Fin-2 (Hz)= 60.0 Fin-3 (Hz)= 63.0
Delay (S)= 1.000 Meas. (S)= 1.000

O/P #	I/R Amp/ohm	Slew rate (A/us)	dV+ max	dV- max	dV-21 Reading	dV-31 Reading
1	0.000	0.100	*	*	-----	-----

O/P #	Vdc max	Vdc min	Vdc-1 Reading	Vdc-2 Reading	Vdc-3 Reading
1	20.600	18.900	-----	-----	-----

O/P #	Noise LPF KHz/Hz	Vpp max	Vpp-1 Reading	Vpp-2 Reading	Vpp-3 Reading
1	20M	0.500	-----	-----	-----

1 20M 0.500 -----

Q 4 : SHORT CIRCUIT ()
 Vin (V)= 120.000 Fin (Hz)= 60.0 Delay (S)= 1.000
 Which LD= 1 Short (S)= 1.000 UUT OFF-S= 3.000

O/P #	Load Name	I/R Amp/ohm	V-disable max	V-disable min	V-disable Reading
1	+20V	4.510	*	*	-----
		MAX	MIN	READING/+	READING/-
	Iinpk (A):	*	*	-----	-----
	Pin (W):	*	*	-----	-----
	Iscrms (A):	0.500	*	-----	-----
	Iscpk (A):	*	*	-----	-----

EQ 5 : HOLD ON ADJ. ()
 Vin (V)= 120.000 Fin (Hz)= 60.0

O/P #	Load Name	I/R Amp/ohm	Vdc max	Vdc min	Vdc Reading
1	+20V	4.510	20.600	18.900	-----

SEQ 6 : OVP/UVLP ()
 Vin (V)= 120.000 Fin (Hz)= 60.0 Delay (S)= 1.000
 Which LD= 1 UUT OFF-S= 3.000 I-limit = 6.000
 Vstart (V)= 13.000 Vend (V)= 21.000 Vstep (V)= 0.200
 Step (S)= 0.100 Release-S= 0.100
 Vtrig (V)= 0.100 Slope = FALL Trig port= M1
 Trig DLY= 0.000 Meas. DLY= 0.000

O/P #	Load Name	I/R Amp/ohm	V-disable max	V-disable min	V-disable Reading
1	+20V	0.100	*	*	-----
O/P # 1		MAX	MIN	READING	
	Vvp (V):	20.000	13.000	-----	-----
	Tvp (mS):	*	*	-----	-----

SEQ 7 : HOLD ON ADJ. ()
 Vin (V)= 120.000 Fin (Hz)= 60.0

O/P #	Load Name	I/R Amp/ohm	Vdc max	Vdc min	Vdc Reading
1	+20V	4.510	20.600	18.900	-----

SEQ 8 : OLP ()
 Vin (V)= 120.000 Fin (Hz)= 60.0 Volp (V)= 1.000
 I/R Start= 4.510 I/R End = 5.000 I/R Step = 0.100
 Step (S)= 0.100 I/R Rec. = 0.100 Vrec (V)= *
 Which LD= 1 Step (S)= 0.100 UUT OFF-S= 3.000

O/P #	MAX	MIN	READING
1			
	OLP point:	5.000	*
	Tolp (mS):	*	*
	Trec (mS):	*	*

SEQ 9 : HOLD ON ADJ. ()
 Vin (V)= 120.000 Fin (Hz)= 60.0

O/P #	Load Name	I/R Amp/ohm	Vdc max	Vdc min	Vdc Reading
1	+20V	4.510	20.600	18.900	-----

SEQ 10 : HOLD UP &SEQ. (HUT)
 Vin (V)= 115.000 Fin (Hz)= 60.0
 Delay (S)= 1.000 UUT OFF-S= 3.000

O/P	Load	I/R	Rise	Va	Vb
-----	------	-----	------	----	----

#	Name	Amp/ohm	(A/us)	(V)	(V)
1	+20V	4.510	0.100	0.000	12.600

O/P #	Start trigger	Start active	End trigger	End active
1	1	L	7	L

O/P #	Thd-ms max	Thd-ms min	Thd-ms Reading
1	*	*	-----

(Tref O/P # *) MAX MIN READING

Tds (mS):	*	*	-----
Tdl (mS):	*	*	-----
Tdls (mS):	*		-----

EQ 11 : TURN ON &SEQ. (RISE)

Vin (V)=	230.000	Fin (Hz)=	60.0	UUT OFF-S=	3.000
PHon (mS)=	0.000	Vin Port =	1		

O/P #	Load Name	I/R Amp/ohm	Rise (A/us)	Von (V)	Va (V)	Vb (V)
1	+20V	4.510	0.100	14.000	0.000	18.900

O/P #	Start trigger	Start active	End trigger	End active
1	7	H	8	H

O/P #	Ton-ms max	Ton-ms min	Ton-ms Reading	Vos Reading
1	4000.000	*	-----	-----

(Tref O/P # *) MAX MIN READING/+ READING/-

Inrush(A):	*		-----	-----
Tds (mS):	*	*	-----	
Tdl (mS):	*	*	-----	
Tdls (mS):	*		-----	

SEQ 12 : LINE REG. (MAX.)

Vin Port1=	1	Vin Port2=	1	Vin Port3=	1
Vin-1 (V)=	180.000	Vin-2 (V)=	220.000	Vin-3 (V)=	264.000
Fin-1(Hz)=	47.0	Fin-2(Hz)=	60.0	Fin-3(Hz)=	63.0
Delay (S)=	1.000	Meas. (S)=	1.000		

O/P #	I/R Amp/ohm	Slew rate (A/us)	dV+ max	dV- max	dV-21 Reading	dV-31 Reading
1	4.510	0.100	*	*	-----	-----

O/P #	Vdc max	Vdc min	Vdc-1 Reading	Vdc-2 Reading	Vdc-3 Reading
1	20.600	18.900	-----	-----	-----

O/P #	Noise LPF KHz/Hz	Vpp max	Vpp-1 Reading	Vpp-2 Reading	Vpp-3 Reading
1	20M	0.500	-----	-----	-----

SEQ 13 : LINE REG. (MIN.)

Vin Port1=	1	Vin Port2=	1	Vin Port3=	1
Vin-1 (V)=	180.000	Vin-2 (V)=	220.000	Vin-3 (V)=	264.000
Fin-1(Hz)=	47.0	Fin-2(Hz)=	60.0	Fin-3(Hz)=	63.0
Delay (S)=	1.000	Meas. (S)=	1.000		

O/P #	I/R Amp/ohm	Slew rate (A/us)	dV+ max	dV- max	dV-21 Reading	dV-31 Reading
1	0.000	0.100	*	*	-----	-----

O/P #	Vdc max	Vdc min	Vdc-1 Reading	Vdc-2 Reading	Vdc-3 Reading
1	20.600	18.900	-----	-----	-----

O/P #	Noise LPF KHz/Hz	Vpp max	Vpp-1 Reading	Vpp-2 Reading	Vpp-3 Reading
1	20M	0.500	-----	-----	-----

Q 14 : SHORT CIRCUIT ()
 Vin (V)= 230.000 Fin (Hz)= 60.0 Delay (S)= 1.000
 Which LD= 1 Short (S)= 1.000 UUT OFF-S= 3.000

O/P #	Load Name	I/R Amp/ohm	V-disable max	V-disable min	V-disable Reading
1	+20V	4.510	*	*	-----
		MAX	MIN	READING/+	READING/-
	Iinpk (A):	*	*	-----	-----
	Pin (W):	*	*	-----	-----
	Iscrms(A):	0.500	*	-----	-----
	Iscpk (A):	*	*	-----	-----

EQ 15 : HOLD ON ADJ. ()
 Vin (V)= 230.000 Fin (Hz)= 60.0

O/P #	Load Name	I/R Amp/ohm	Vdc max	Vdc min	Vdc Reading
1	+20V	4.510	20.600	18.900	-----

SEQ 16 : OVP/UVF ()
 Vin (V)= 230.000 Fin (Hz)= 60.0 Delay (S)= 1.000
 Which LD= 1 UUT OFF-S= 3.000 I-limit = 6.000
 Vstart (V)= 13.000 Vend (V)= 21.000 Vstep (V)= 0.200
 Step (S)= 0.100 Release-S= 0.100 Trig port= M1
 Vtrig (V)= 0.100 Slope = FALL
 Trig DLY= 0.000 Meas. DLY= 0.000

O/P #	Load Name	I/R Amp/ohm	V-disable max	V-disable min	V-disable Reading
1	+20V	0.100	*	*	-----
O/P # 1		MAX	MIN	READING	
	Vvp (V):	20.000	13.000	-----	-----
	Tvp (mS):	*	*	-----	-----

SEQ 17 : HOLD ON ADJ. ()
 Vin (V)= 230.000 Fin (Hz)= 60.0

O/P #	Load Name	I/R Amp/ohm	Vdc max	Vdc min	Vdc Reading
1	+20V	4.510	20.600	18.900	-----

SEQ 18 : OLP ()
 Vin (V)= 230.000 Fin (Hz)= 60.0 Volp (V)= 1.000
 I/R Start= 4.510 I/R End = 5.000 I/R Step = 0.100
 Step (S)= 0.100 I/R Rec. = 0.100 Vrec (V)= *
 Which LD= 1 Step (S)= 0.100 UUT OFF-S= 3.000

O/P #	MAX	MIN	READING
1			
	OLP point:	5.000	*
	Tolp (mS):	*	*
	Trec (mS):	*	*

SEQ 19 : HOLD ON ADJ. ()
 Vin (V)= 230.000 Fin (Hz)= 60.0

O/P #	Load Name	I/R Amp/ohm	Vdc max	Vdc min	Vdc Reading
-------	-----------	-------------	---------	---------	-------------

```

1      +20V      4.510      20.600      18.900      -----
-----

2 20 : HOLD UP &SEQ. (HUT)
      Vin (V)= 230.000      Fin (Hz)= 60.0
      Delay (S)= 1.000      UUT OFF-S= 3.000

O/P      Load      I/R      Rise      Va      Vb
#      Name      Amp/ohm      (A/us)      (V)      (V)

1      +20V      4.510      0.100      0.000      12.600

O/P      Start      Start      End      End
#      trigger      active      trigger      active

1      1      L      7      L

O/P      Thd-ms      Thd-ms      Thd-ms
#      max      min      Reading

1      *      *      -----

(Tref O/P # *)      MAX      MIN      READING

Tds (mS):      *      *      -----
Tdl (mS):      *      *      -----
Tdls (mS):      *      *      -----
-----

```

MANUFACTURING TEST REQUIREMENT

PA-1900-05D

APPROVED BY: Jerry Hsm

MODEL	REV	Written By	LITE-ON Electronics, Inc.
PA-1900-05D	C 29/DEC/01	<i>Dearbear Lai</i>	SHEET 1 of 8

LITE-ON

REV.	ITEM	DESCRIPTIONS OF CHANGE	CHANGED	REF. DOC.
NO.			DATE :	NO.
A		INITIAL	10/11/01	DN-
B	2.5	Changed the freq from 60Hz to 47Hz.	11/26/01	
	3.2	Changed OLP to 6.5A(Max).		
C	3.2	Changed OLP to 6.0A(Max).	12/29/01	

MODEL	REV	Written By	LITE-ON Electronics, Inc.
PA-1900-05D	C 29/DEC/01	<i>Dearbear Lai</i>	SHEET 2 of 8

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2.9.	Output combine regulation & Ripple/Noise test	6
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MODEL	REV	Written By	LITE-ON Electronics, Inc.
PA-1900-05D	C 29/DEC/01	<i>Dearbear Lai</i>	SHEET 3 of 8

1. INPUT/OUTPUT REQUIREMENT

Input Voltage	Input Frequency
90Vac ~ 265Vac	47Hz ~ 63Hz

DC Output	MIN	MAX	PEAK	UNIT
20.0V	0	4.51	5.5(4s)	A

2. Detail Description:**2.1. Inrush current**

Test condition			Design Requirement
AC input	DC output		
100V/60Hz	+20.0	4.51A	REF
240V/50Hz			REF

2.2. Rated current

Test condition			Design Requirement
AC input	DC output		
90V/60Hz	+20.0V	4.51A	1.5A(max)

2.3. Power factor

Test condition			Design Requirement
AC input	DC output		
230V/50Hz	+20.0V	4.51A	0.9(min)

2.4. Hold-up time

Test condition			Design Requirement
AC input	DC output		
90V/60Hz	+20.0V	4.51A	10ms(min)

MODEL	REV	Written By	LITE-ON Electronics, Inc.
PA-1900-05D	C 29/DEC/01	Dearbear Lai	SHEET 4 of 8

2.5. Turn-on time

Test condition			Design Requirement
AC input	DC output		
90V/47Hz	+20.0V	4.51A	4sec.(max)
240V/50Hz			

2.6. Output rise time

Test condition			Design Requirement
AC input	DC output		
90V/60Hz	+20.0V	4.51A	30mS
240V/50Hz			

Note1: Measured from the 10% point to the 90% point on voltage waveform.

2.7. Power supply efficiency

Test condition			Design Requirement
AC input	DC output		
90V/60Hz	+20.0V	4.51A	83%(min)
240V/50Hz			

2.8. No load power loss

Test condition			Design Requirement
AC input	DC output		
115V/60Hz	+20.0V	0A	1.0W
240V/50Hz			

Note1: Using the power meter of YOKOGAWA WT-110.

MODEL	REV	Written By	LITE-ON Electronics, Inc.
PA-1900-05D	C 29/DEC/01	Dearbear Lai	SHEET 5 of 8

2.9. Output combine regulation & Ripple/Noise test

Note 1: The ripple/noise voltage of the outputs shall be measured at the pins of the mating output connect.

Note 2: A high frequency 1nF ceramic capacitor shall be used to terminate each output at the measurement point.

Note 3: The ripple frequencies greater than 20MHz shall be attenuated by the measurement.

Test condition			Design Requirement	
AC input	DC output		Item	
90V/47Hz	+20.0V	0A	Ripple/Noise	<500mVp-p
			Regulation	+20.6V ~ +18.9V
90V/47Hz		4.51A	Ripple/Noise	<500mVp-p
			Regulation	+20.6V ~ +18.9V
100V/60Hz		0A	Ripple/Noise	<500mVp-p
			Regulation	+20.6V ~ +18.9V
100V/60Hz		4.51A	Ripple/Noise	<500mVp-p
			Regulation	+20.6V ~ +18.9V
240V/50Hz		0A	Ripple/Noise	<500mVp-p
			Regulation	+20.6V ~ +18.9V
240V/50Hz		4.51A	Ripple/Noise	<500mVp-p
			Regulation	+20.6V ~ +18.9V
264V/50Hz		0A	Ripple/Noise	<500mVp-p
			Regulation	+20.6V ~ +18.9V
264V/50Hz		4.51A	Ripple/Noise	<500mVp-p
			Regulation	+20.6V ~ +18.9V

MODEL	REV	Written By	LITE-ON Electronics, Inc.
PA-1900-05D	C 29/DEC/01	<i>Dearbear Lai</i>	SHEET 6 of 8

2.10. Dynamic load

Test condition			Design Requirement
AC input	DC output		
90V/60Hz	+20.0V	0 ~4.5A	Rise: 0.5A/uS Fall: 0.5A/uS Frequency: 120Hz
100V/60Hz			
240V/50Hz			
265V/50Hz			

Note: Set the load change frequency at 120Hz and duty at 50%.

3. Protection

3.1. Over voltage protection

Test condition			Design Requirement		
AC input	DC output				
90V/60Hz	+20.0V	0A	MIN	MAX	Shutdown & Latch off
240V/50Hz		4.51A	---	24	

3.2. Over current protection

Test condition			Design Requirement
AC input	DC output		
90V/60Hz	+20.0V	6.0A(max)	Shutdown & Latch off
240V/50Hz			

3.3. Short circuit protection

Test condition		Design Requirement
AC input	DC output	
90V/60Hz	Short output terminal of DC plug + and - .	.No damage shall occur.
100V/60Hz		.Shutdown & Latch off.
240V/50Hz		
264V/50Hz		

MODEL	REV	Written By	LITE-ON Electronics, Inc.
PA-1900-05D	C 29/DEC/01	Dearbear Lai	SHEET 7 of 8

3.4. Over temperature protection

When the inside temperature of PSU rise to 110 ~ 130 degree C, the PSU will shutdown and latch off until the AC reset. Please short the RT100 to make sure the OTP circuit could work well. It simulation the over temperature condition occur.

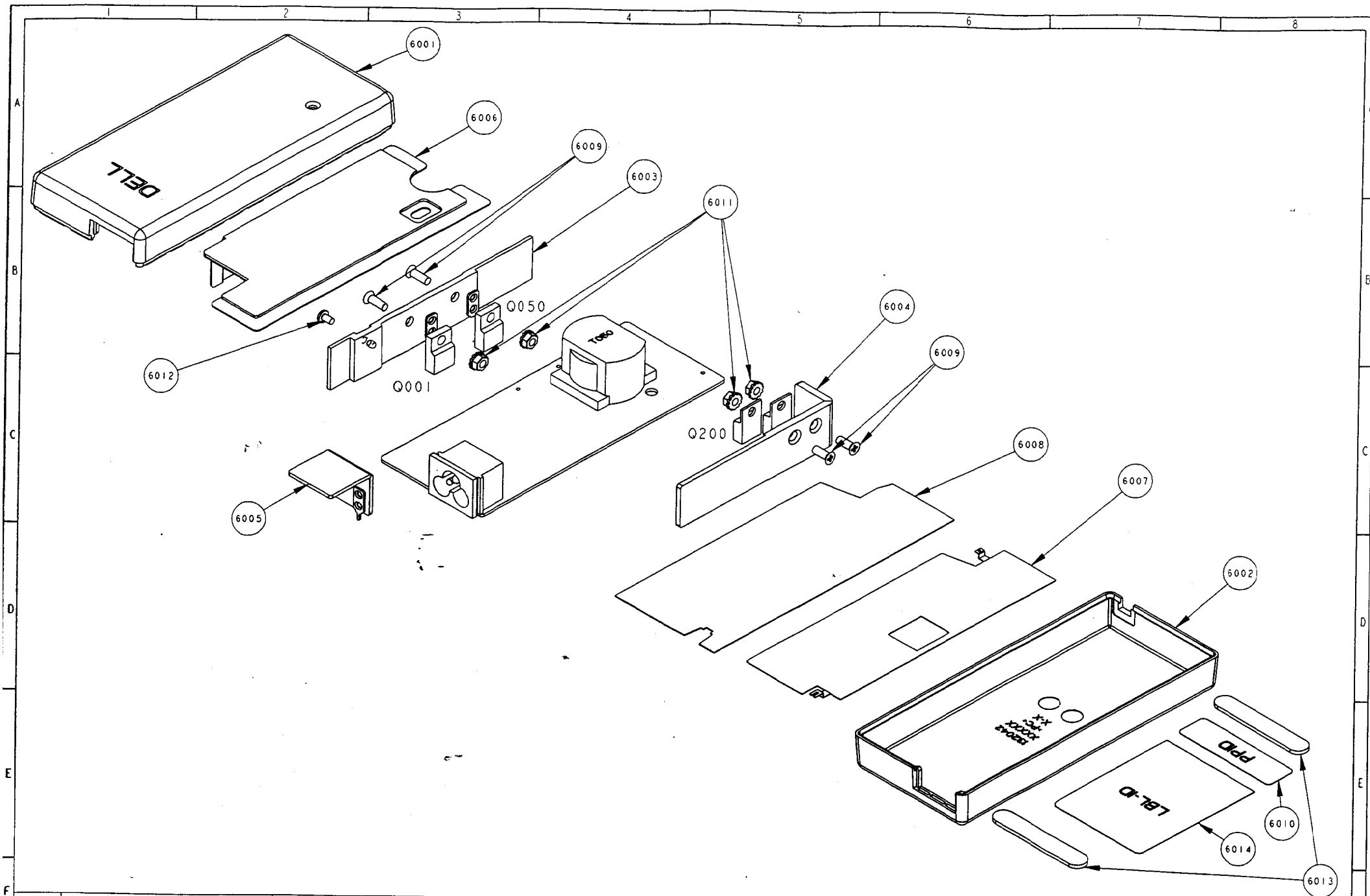
4. HI-POT test

Apply DC2150V on primary to secondary 1sec. No component, no arcing, no noise, and the cut off current shall below 10mA.

5. Insulation resistance

Apply DC 500V to primary-secondary and measured the resistance shall be large than 30M ohms.

MODEL	REV	Written By	LITE-ON Electronics, Inc.
PA-1900-05D	C 29/DEC/01	<i>Dearbear Lai</i>	SHEET 8 of 8



A		RELEASED	0119-02	PRINTING DATE	15-JAN-2002	2D FILE	ASSEMBLY.PA-1900-050	DESIGNER	JULIAN	LITEON		TITLE: ASSEMBLY	PART NO.:
REVISION		DESCRIPTION	DATE	ZONE	UNIT: mm	SCALE: 0.800	3D FILE	ASSEMBLY.PA-1900-050	CHECKER	APPROVED	AL	PROJECT: PA-1900-050	DRAWING NO.: 3AAA00459
										LITEON ELECTRONICS, INC.		REV.: A	

PA-1900-05D SPECIAL ASSEMBLING INSRTUCTION

Partlist Rev: 06

REV: A

一. 安規要求：	膠類料號
1.1 L002 & PCB, C003 & L003 & PCB, C002 & L003 & PCB, C010 & PCB, C054 & C054-1 & PCB, C204 & L200 & PCB, C205 & C206 & PCB, L010 & PCB, T050 & PCB, RT100 & C051, FLY1 & PCB, FLY2 & PCB, C006 & PCB, L001 & PCB 之間須點白膠.	(131921) 14-RTV04
1.2 D003, C050, L001 及 D052 須吹縮熱縮套管.	參閱 P / L
1.3 C051 須貼TAPE (9004) 於本體上與PCB間, 折彎平放後再點白膠 固定於PCB.	
1.4 L002 & PCB間周圍要加強點白膠, L002上方至HS3下方的空間 也要點白膠加強固定. (如附圖一).	(131921) 14-RTV04
二. 客戶要求：	膠類料號
三. 設計性要求：	膠類料號
3.1 HS1, HS2, HS3, T050, L010, C204, L002, C001, D050不可浮件, 歪斜, 須和 PCB 緊貼.	
3.2 T050的上方須和 SH1之間點導熱膠, 緊貼固定導熱, 點膠量務求均勻, 膠厚少於0.2mm.	(131334) 14-RTV03
3.3 D050 & HS3之間須點導熱膠, 緊貼固定導熱.	(131334) 14-RTV03
3.4 PCB (銅箔面) 零件出腳 : 除了 C205(-) 及 T-pin(5002)出腳須為 2.5 mm, 其他零件出腳不得超過 1.7 mm.	
3.5 Q001, Q051, Q200及Q201背面須均勻塗上散熱膏, 再鎖上散熱片.	(101506) 14-HP01
3.6 貼 TAPE(9001)於HS1 & D050間的HS1上, TAPE需超出HS1約2mm.	
3.7 貼 TAPE(9002) 於 HS3 & L002 間的 HS3 上, 從定位痕處貼起.	
3.8 貼 TAPE(9003) 於 HS3 & L003 間的 HS3 上, 從靠近L003部分貼起.	
3.9 加套管 (9005) 於 L003 & L010 間的 J6 上.	
3.10 貼 TAPE(9006) 於 SH1下方內側, TAPE長形孔位需對齊SH1長形孔, 以反摺方式將三側貼於SH1上方凹陷處, TAPE反摺時須平整貼於SH1, 並保持5mm的安規距離. (如附圖二).	
3.11 貼 TAPE(9007) 於 HS2 & C051及RT100 間的 HS2上, 從定位痕處貼起.	
3.12 貼 TAPE(9008) 於 HS1 & C006 間的 HS1 上, 從定位痕處貼起.	
3.13 貼 ISL-PLT+T(6008) 於SH2上方, SH2焊點朝上, 靠右對齊, 另外三邊須保持5mm的安規距離.	
3.14 L200為1:150之choke,請按PCB之元件圖樣插入,單圈的靠HS2.	
3.15 R211跳線電阻不能浮件以免影響OLP動作點.	
3.16 L003不能傾倒接觸D050之散熱片.	
3.17 DC cord 焊後出腳不得超過2.3mm.	
3.18 L001不可浮件, 不得往INLET方向傾倒, 以免影響安規距離.	
3.19 變壓器 T050腳位四周除靠近LED區域外, 須加強點固定.	
3.20 Q203,R202,R203需點導熱膠幫助散熱.	(131334) 14-RTV03
3.21 貼TAPE(9013)於HS2 & L200間的HS2上, 從HS2下緣開始貼起.	
四. 其他要求：	膠類料號
4.1 PCB 上 T050 (不含 ISL-PAD) 限高 19.25 mm.	
4.2 機芯組裝完成後, 整體高度(SH1上緣至 SH2下緣)限高25.5mm.	
4.3 超音波熔合外殼後, 中線縫為0.7mm, 推力為50KGF(min).	
4.4 組裝外殼時, 上蓋先裝, 再裝下蓋.	

Prepared by:

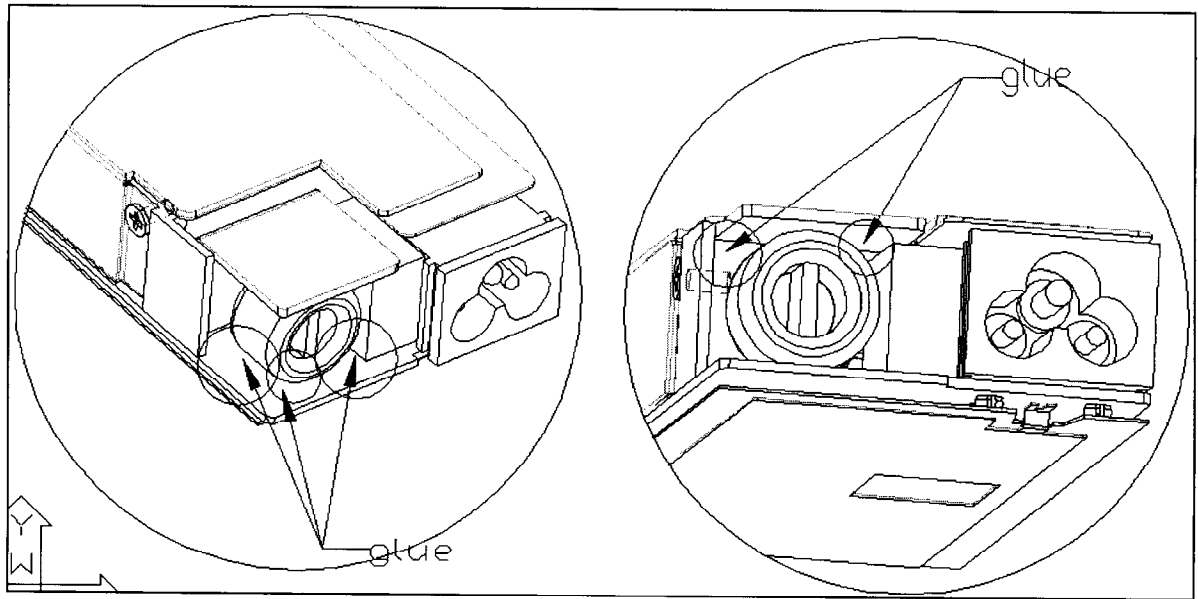
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Approved by:

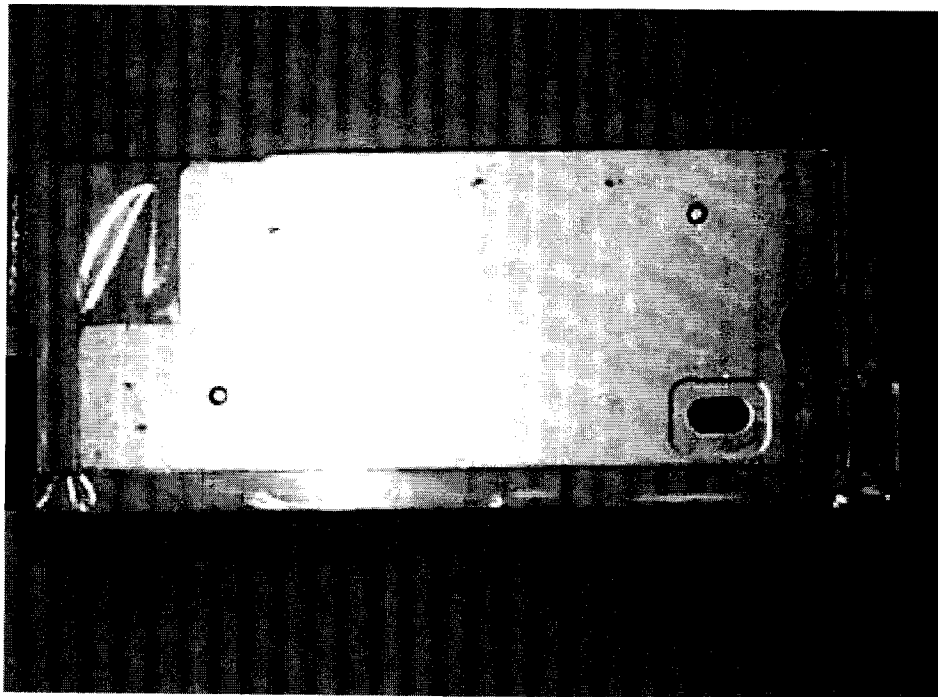
劉俊良
賴成烈

5

1: Lerryson 7/28



附圖一



附圖二



PA-1900-05D DVT2 Report

To : Dearbear Lai, Julian Liu, Korea Han,

File NO.: SBA-PR-0201020

Shen Tao, Sky Li, J Liu, QD Chen

CC : Ek Lim, HC Cheng, Robert Wen, D Wang,

Issue Date: 2012.1.27

David Chen, Jerry Hsu, Alex Yih, Sheera Yang

From : Bravechi

Lot Information :

Input Date : 1/5/02

Product Rev :

Line # : L2-18

P/L Rev : 0E

Lot Qty : 800

Customer : DELL

Over All Test Loss (OATL) :

Station	INITIAL	B/I	HI-PORT	OLP	ATE	OATY (%)
Input Qty	800	800	800	800	800	
Reject Qt	3	2	0	0	0	
Yield (%)	99.63%	99.75%	100.00%	100.00%	100.00%	99.38%
OATL :	6,241	DPPM				

Attachments as below :

- | | | | |
|-------------------------------------|-----------|------------------------------|-------------|
| (1). FA & CA | (1 Pages | (6). ORT Results | (/ Pages) |
| (2). Solder Quality Analysis Report | (4 Pages | (7). Ultrasonic Report | (/ Pages) |
| (3). FMEA | (2 Pages | (8). Uninput and Source List | (/ Pages) |
| (4). Electrical CPK | (36Pages | (9). PMP & Flow Chart | (10 Pages) |
| (5). Cable CPK | (/ Pages | (10). Test Plan | (11 Pages) |

Open Issues :

No	Section	Item No
(a)	FA&CA	OK
(b)	Solderability	OK
(c)	FMEA	OK
(d)	Elec.CPK	OK
(e)	Cable CPK	N/A
(f)	ORT	N/A
(g)	Ultrasonic	N/A

Conclusion :

此 Model 没有 Open Issue, 故同意投入
下-stage (Pilot Run) ..

Prepared :

H. Li 1/5/02

Checked :

胡伟 1/24/02

Approved :

for Peter 1/26/02

55

(C) Failure Analysis And Corrective Action (FA & CA) (By PE For All Stations)

(1) Station : INITIAL

No	Issue (Symptom & Root Cause)	Qty	Solution (Containment & Corrective Action)	By	Due Date
1	JP2 MISS SOLDER CAUSE UUT SHUTDOWN	3	1. INFORM RM PAY ATTENTION TO ADJUST SOLDER STOVE 2. LQC CHECK IT CAREFULLY	RM 周小志	2.5.2002

(2) Station : B/I

No	Issue (Symptom & Root Cause)	Qty	Solution (Containment & Corrective Action)	By	Due Date
1	R103 MISS SOLDER LEAD TO UUT SHUT DOWN	1	(1). R/M PAY ATTENTION TO ADJUST SOLDER STOVE. (2). LQC CHECK IT CAREFULLY	R/M 周小志	2.5.2002
2	R303 MISS SOLDER LEAD TO UUT SHUTDOWN	1	(1). R/M PAY ATTENTION TO ADJUST SOLDER STOVE. (2). LQC CHECK IT CAREFULLY		

(3) Station : ATE

No	Issue (Symptom & Root Cause)	Qty	Solution (Containment & Corrective Action)	By	Due Date
1	R008 MISS SOLDER CAUSE THE PFC<0.9	1	(1). R/M PAY ATTENTION TO ADJUST SOLDER STOVE. (2). LQC CHECK IT CAREFULLY	R/M 周小志	2.5.2002
2	J11 MISS SOLDER CAUSE THE PFC<0.9	1	(1). R/M PAY ATTENTION TO ADJUST SOLDER STOVE. (2). LQC CHECK IT CAREFULLY (3). ADD TEST PFC AT OLP ADJUST STATION	R/M 周小志	2.5.2002

SOLDERING QUALITY ANALYSIS REPORT

TO: IE/張馳
FROM: SBU1-RM

KIND: DVT2
DATE: 2002/1/4

PARAMETER	LINE	L2-18				DENSITY [g/cm ³]				0.842				TOTAL DOT [bit]				17640			
	MODEL	PA-1900-05D				REAL. DENSITY [g/cm ³]				0.843				SOLDER TIME [sec.]				3.3			
	PREHEAT I [°C]	320				SOLDER'S TEMP. [°C]				242				TOTAL DOT/PCB [bit]				441			
	PREHEAT II [°C]	400				REAL TEMP. [°C]				242				SPOT CHECK [pcs]				40			
	REAL TEMP. [°C]	97				SPEED [m/min]				1.35				PCB DIRECTION				二連板過錫(見附圖)			
SKIPPING	LOCATION	R051	C206	C205																	
	Q' TY	1	1	1																	
	DPPM	57	57	57																	
SHORTS	LOCATION	IC100																			
	Q' TY	17																			
	DPPM	964																			
OTHERS	LOCATION																				
	Q' TY																				
	DPPM																				
TOTAL	DEFECT DOT	20																			
	DPPM	1134																			

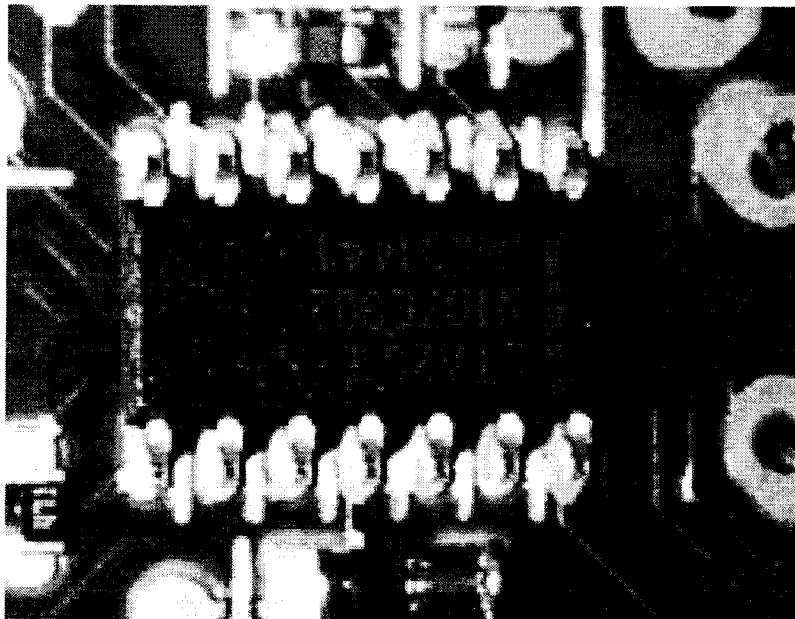
PREPARED BY: 王國華 2/1/02

CHECKED BY: 黃松榮 2/1/02

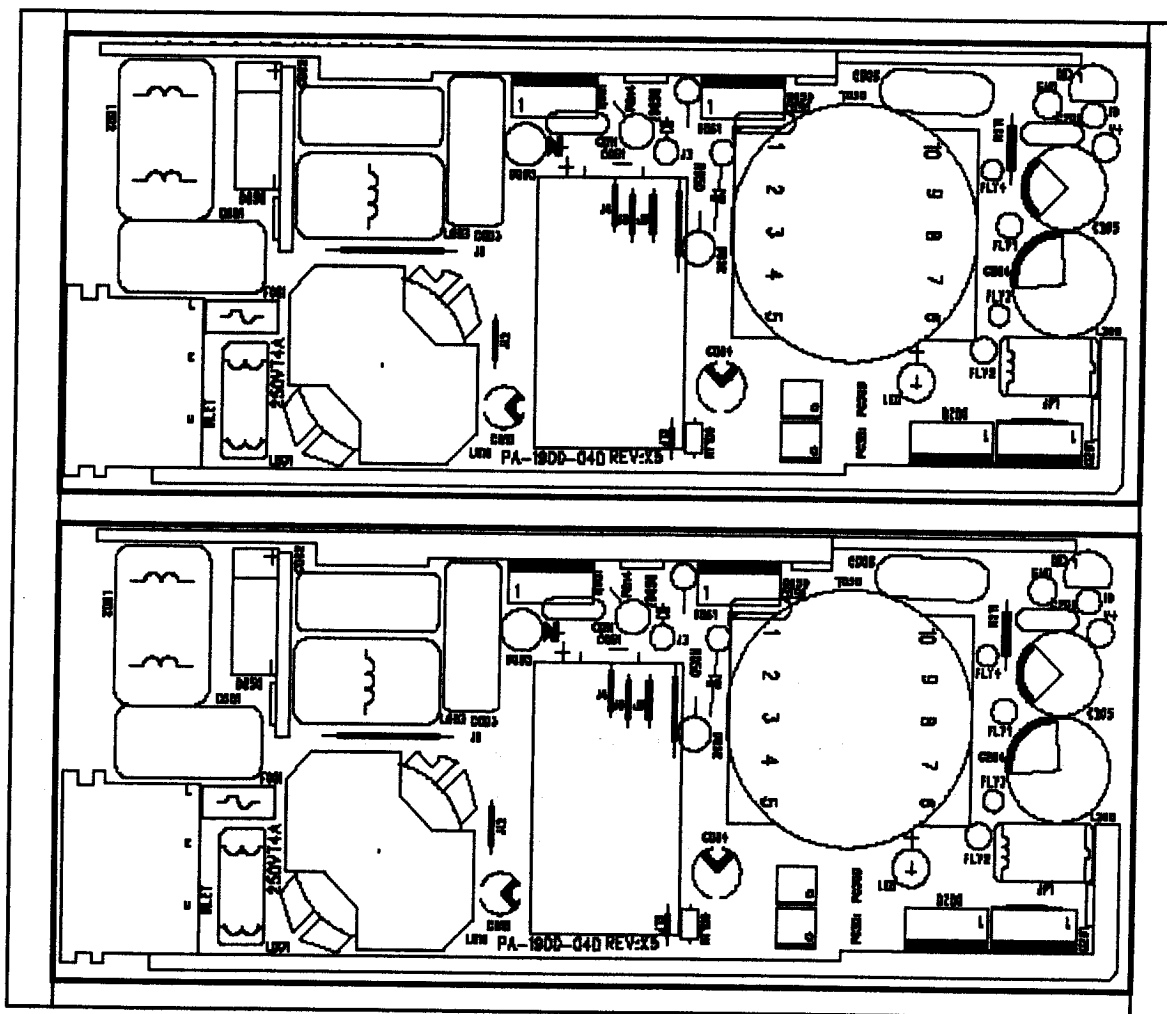
APPROVED BY: 劉子強 2/1/02

KIND: DVT2(2002/1/4)

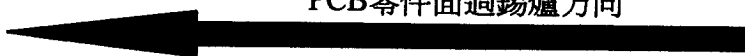
MODEL: PA-1900-05D

ITEM	LOCA.	DEFE.	DPPM	ROOT CAUSE	CORRECTIVE ACTION	RES.	CLOSE-DAT	REMARK
1	IC100短路	17	964	由于AI贴片该IC100后,IC100之PIN脚未贴在对应吃锡PAD中央,易造成IC100之PIN脚间短路 	1;請AI調整SMD機器,盡量使IC100之PIN腳貼在對應吃錫PAD中央. 2;請P/T Stady IC100對應吃錫PAD,設計防呆結構以防止SMD時IC100之PIN腳偏移.	AI/李君權 P&T/賴威烈	PILOT RUN	本次EVT中:其中Q001,Q200,Q201,Q050對應PAD設計為"C"型(電性需要),故以上元件之焊接未作分析.

PREPARED BY: 王國棟 2/7'02CHECKED BY: 林松陽 2/8'02APPROVED BY: 楊中祿 2/8'02



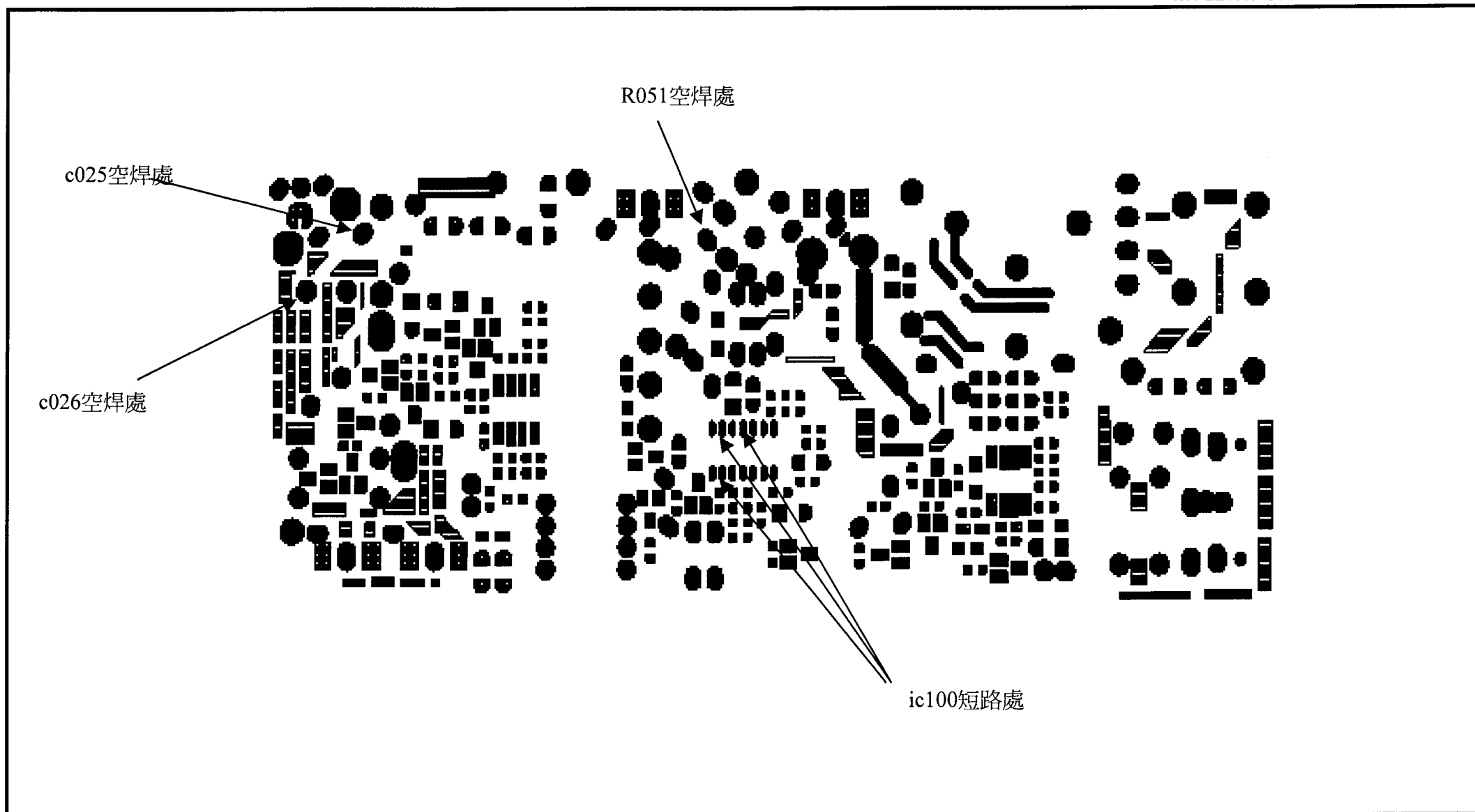
PCB零件面過錫爐方向



PREPARED BY: 李坤本 2/7'02

CHECKED BY: 林敏 2/8'02

APPROVED BY: 劉中強 2/8'02



PREPARED BY: 區國雄 2/7/02

CHECKED BY: 沈松昌 08/02

APPROVED BY: 劉中強 2/8/02

Model : PA-1900-05D

Process Name: DVT2 Customer : DELL

PCB Rev: X8

FMEA Date: 1/5'01

Team Member	Occurrence Ranking	Severity/Effect Ranking	Detection Ranking	Produce Phase	Remark
IE: 張馳	1.Remote chance < 0.01 %	1.No negative impact to quality	1.Certain to be detected for 100%	☐ EVT	O---OCCURRENCE
PE: 陳全東	2.Very low 0.01 ~ 0.1 %	2.Minor increase operating time : less 15sec	2. Easy to be detected with tools or instruments,readily for evidence	DATE: _____	S---SEVERITY
IPQC: 龍朝國	3.Moderate 0.1 ~ 1 %	3.Major increase operating time: Over 15sec	3. Easy to be detected with tools or instruments,slips by unnoticed	Q'TY: _____	D---DETECTION
MFG: 劉均	4.High 1 ~ 5 %	4.Inconvenience in Fit / Cosmetic	4. Difficult to be detected twice in process even with tools or instruments	☒ DVT 2	RPN= O* S* D
OQC: 雷堂美	5.Almost Certain 5 ~ 100 %	5.Specification Deviation	5. Difficult to be detected once in process even with tools or instruments	DATE:1/5'02	Action Must to take to resolve When RPN >144
SQM: 唐家剛		6.Customer Reject of Fit or Cosmetic	6. Hard to be detected twice in process,manual inspection	Q'TY: 800	
		7.Function failure	7. Hard to be detected once in process,manual inspection	☐ P/R	
		8.Totally dysfunctional	8.Failure detected may destroy the unit	DATE: _____	RPN---Top row of the risk assesment column for before
		9.Presents injury hazard	9. Hve change of recurrence after detection	QTY: _____	RPN---Bottom row of the risk assesment column for after Improvement
		10.Fatal if used	10.Slips by undetected with reliability possible		
PRE BY: 張馳					
CHK BY: 胡偉 1/6'02					
APP BY: [Signature]					

No.	工程名稱 Name of Process	故障模式 Potential Failure Mode	故障影響&ROOT CAUSE Effect of Potential Failure	影響度 S'TY	發生度 F/O	檢出度 DET.	RPN	改善對策 Corrective Action	負責人 Charge	Person In Charge / Due Day	對策回覆 Action respond
1	SMD	ITEM 2004 127424 中有R303位置而ITEM 2026 127617 也有R303.現在植件為127617	無法確認材料是否正確	4	5	6	120	請P/T UpdateP/L	賴威列	Before Pilot	UpdateP/L
				2	2	2	8				
2	HI	C050在T050&HS1之間插件空間為2.0mm,而C050厚度實際尺寸為2.75mm(Max:4.5mm)	1.導致HS1向外傾斜。 2.HS1扶正后會擠壓C050.	4	5	6	120	請P/T Study 更好的Layout方式，或在C050腳上增加一2*9mmTube 有利于制程中將C050成形	賴威列 & 劉俊良	Before Pilot	加套管
				2	1	2	4				
3	TU	插DC線材(GND)空間不足	作業困難	4	5	6	120	請P/T考量將散熱片HS1與線材部分去除或Relayout PCB	賴威列 & 劉俊良	Before Pilot	已無空間 relayout
				2	2	2	8				
4	AS	接地紅銅片超出PCB	造成鉚合后縫隙過大	7	5	5	175	請P/T重新修正絕緣片與接地紅銅片尺寸,將靠板邊尺寸由10.1mm改為9.1mm	劉俊良	Before Pilot	update spec
				3	2	2	12				

No.	工程名稱 Name of Process	故障模式 Potential Failure Mode	故障影響&ROOT CAUSE Effect of Potential Failure	影響度 S'TY	發生度 F/O	檢出度 DET.	RPN	改善對策 Corrective Action	負責人 Charge	Person In Charge / Due Day	對策回覆 Action respond
5	AS	T-Pin 為7*1.7mm而實際僅需4*1.7mm	作業困擾	4	4	5	80	請P/T新開一料號Spec為4*1.7mm	劉俊良	Before Pilot	已出規格待送樣承認,承認後可導入
				2	2	2	8				
6	B/I	INLET上的FG,L&N pin與L001跳火	導致炸機	6	3	6	108	建議P/T在PA-1900系列機種中所有INLET鉗PIN上要求廠商加貼一絕緣片	劉俊良	Before Pilot	L001加套管
				2	2	2	8				
7	TU	IC100之PIN腳未貼在對應吃錫PAD中央	IC100短路	5	5	5	125	請P/T Stady IC100對應吃錫PAD,設計防呆結構以防止SMD時IC100之PIN腳偏移.	賴威列	Before Pilot	pad之尺寸及pitch均正確,請自行確認製程
							0				
8	HI	C051負極加一套管	困擾作業	3	4	3	36	實際上ZD050已經取消,故不需套套管	劉俊良	Before Pilot	update p/l
				1	1	1	1				
							0				
							0				
							0				
							0				
							0				
							0				
							0				
							0				



lite-On Electronics (DG) Co. Ltd.

光寶電子(東莞)有限公司

CPK REPORT (mixing source-1)

CUSTOMER :

DELL

PROJECT NAME :

COMANECI

DELL P/N :

6G356

MODEL :

PA-1900-05D

PREPARED BY :

陳金東

1.18'02

CHECKED BY :

王東 1/26/02

APPROVED BY :

for Peter
1/26/02

Item	Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on	
Vin/Fin	90V/47Hz		90V/60Hz		115V/60Hz		132V/63Hz		180V/47Hz		240V/50Hz		240V/50Hz		264V/63Hz	
Load	4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A	
Item Content	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush
NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	481.696	27.46	10.823	9.195	359.751	40.117	354.785	14.82	354.3	40.304	348.664	42.929	10.136	43.46	347.225	42.835
2	559.906	26.929	11.818	8.914	361.292	40.554	359.968	14.539	359.845	39.242	354.942	42.46	10.779	43.46	353.687	41.523
3	557.409	28.179	12.635	9.164	362.4	41.46	358.54	14.726	358.19	39.71	353.788	42.492	10.332	45.023	352.196	43.679
4	589.455	29.054	12.714	8.726	393.643	40.585	383.298	14.195	382.454	36.242	373.874	43.585	10.422	42.242	372.152	46.46
5	578.055	27.648	12.961	8.726	387.12	41.054	374.14	14.257	372.228	35.304	363.933	42.117	10.136	43.054	362.581	44.242
6	549.2	29.46	12.76	8.976	382.467	42.742	379.107	14.632	375.119	36.179	346.588	44.804	10.971	42.179	346.154	45.679
7	561.278	26.679	12.422	8.82	362.905	41.492	359.309	14.289	359.504	36.773	353.695	43.273	10.332	42.804	352.325	43.679
8	569.388	29.054	11.626	8.882	396.783	42.273	392.759	14.382	388.264	39.929	358.962	44.648	10.136	42.523	358.042	44.242
9	578.779	27.46	11.98	8.851	389.332	41.148	389.121	14.445	386.745	38.867	365.236	42.71	10.422	43.492	364.578	43.148
10	548.979	29.398	13.162	8.976	350.092	41.554	346.8	14.507	346.431	40.46	341.8	42.804	10.971	42.804	340.988	41.867
11	577.79	28.148	11.535	9.007	374.644	41.71	368.831	14.57	368.694	36.429	363.326	42.898	10.422	42.304	361.996	45.117
12	568.875	26.898	11.17	8.726	363.252	40.21	361.276	14.132	360.992	38.367	356.859	42.835	10.306	43.054	355.628	41.242
13	557.638	28.21	11.576	8.757	365.724	42.085	361.92	14.164	359.122	39.023	347.07	42.929	10.422	43.023	346.165	43.835
14	569.614	27.429	11.46	8.945	365.688	41.898	366.071	14.539	363.62	35.648	358.406	45.117	10.727	42.023	356.459	45.429
15	568.553	29.867	11.946	8.851	366.26	40.304	361.857	14.382	360.872	38.492	356.027	42.617	10.971	43.773	354.748	43.398
16	561.329	30.273	12.057	9.195	382.389	40.992	380.691	14.82	377.164	40.117	352.777	42.117	10.551	44.335	351.837	43.46
17	566.645	29.742	11.659	8.914	360.801	41.304	358.459	14.382	358.201	36.335	354.088	43.335	10.551	43.117	352.529	43.085
18	567.662	28.648	11.696	8.726	385.221	40.242	373.751	14.132	369.959	38.648	353.347	42.554	10.971	43.492	351.892	43.554
19	566.864	30.085	11.481	8.914	370.78	40.554	362.832	14.57	362.076	39.429	353.407	42.273	10.838	44.46	351.872	43.054
20	568.523	26.929	14.192	8.976	364.248	42.21	365.529	14.57	365.075	36.835	357.143	43.054	10.418	42.773	355.519	43.648
21	577.671	26.898	11.563	8.82	367.926	40.367	365.281	14.257	364.764	38.46	359.725	43.21	10.838	43.179	358.612	41.867
22	576.483	27.273	11.459	8.82	372.358	40.367	366.795	14.289	366.399	38.429	359.612	43.554	10.907	43.304	357.97	43.398
23	567.846	28.585	12.058	8.664	375.493	42.429	363.198	14.007	362.651	35.492	352.865	43.867	10.635	42.335	351.304	41.242
24	568.069	27.804	13.239	8.632	360.739	41.117	358.388	14.132	357.988	37.054	353.607	43.304	10.635	43.429	352.402	43.804
25	579.254	29.929	12.018	8.851	378.415	41.648	368.901	14.414	368.213	39.117	362.647	43.335	10.907	43.617	361.046	44.179
26	577.444	27.742	10.925	9.07	372.918	40.648	369.244	14.664	368.28	36.179	363.666	42.554	10.689	44.679	361.837	42.429
27	579.848	29.867	12.529	8.914	396.911	39.992	381.904	14.445	381.052	38.898	365.663	42.335	10.635	43.804	364.177	43.898
28	566.859	29.773	11.298	8.851	379.577	40.742	359.626	14.257	358.158	38.429	351.452	42.46	10.673	45.117	349.949	42.054
29	577.487	28.773	11.147	8.789	376.509	41.46	367.583	14.32	367.361	35.773	362.793	44.804	10.689	42.242	361.499	46.242
30	570.658	30.273	12.289	9.101	369.09	42.835	364.942	14.757	364.513	38.585	358.733	43.054	10.838	42.742	357.521	41.335
31	577.909	28.023	11.493	8.914	381.676	40.242	376.267	14.351	374.032	38.929	361.19	41.992	10.738	43.335	360.415	42.304
32	559.283	27.492	12.179	9.132	359.976	41.023	355.229	14.632	354.34	36.554	346.996	43.054	10.667	41.804	345.998	43.835
33	567.872	29.304	13.9	9.007	377.153	39.898	357.844	14.664	357.066	39.523	351.838	42.96	10.431	43.242	350.393	44.179
34	567.872	29.304	13.9	9.007	377.153	39.898	357.844	14.664	357.066	39.523	351.838	42.96	10.431	43.242	350.393	44.179
35	568.19	29.929	12.022	9.07	364.423	40.679	359.831	14.632	359.302	38.585	353.47	43.492	10.667	45.054	352.159	43.492
36	578.136	29.773	11.587	8.914	373.1	39.96	368.337	14.32	367.84	39.179	362.854	43.179	10.667	43.398	361.073	43.679
37	580.227	29.304	12.047	9.039	380.034	39.242	377.076	14.57	376.411	39.21	371.899	42.898	10.431	43.648	371.982	42.929
38	548.013	27.804	11.383	8.914	357.816	40.242	349.85	14.539	349.743	39.617	343.258	41.929	10.959	43.023	342.228	43.148
39	568.892	29.804	10.767	9.007	395.682	40.085	380.979	14.507	378.775	37.46	356.962	43.242	10.558	44.492	355.843	43.179
40	598.127	27.96	11.971	8.851	389.996	41.023	382.974	14.351	382.161	38.679	373.015	42.554	9.896	43.242	372.945	41.96
41	566.518	29.773	11.782	8.82	380.557	41.648	359.736	14.351	356.597	37.46	350.545	43.304	10.667	42.46	349.331	45.242
42	562.114	27.929	11.61	8.976	358.26	42.367	355.092	14.507	354.78	40.21	350.794	44.554	10.323	42.335	349.234	42.117
43	433.215	26.523	12.695	8.976	365.961	40.335	362.655	14.664	362.618	38.773	359.274	42.273	9.927	43.367	357.41	43.148
44	566.945	29.21	12.068	8.945	379.914	40.023	375.264	14.507	371.747	38.648	351.879	43.179	10.323	43.335	351.017	43.742
45	566.534	27.492	11.658	8.757	364.949	39.054	359.826	14.257	359.027	38.867	353.776	42.617	11.275	43.398	352.532	42.742
UNIT	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A
UCL	4000	50	30	50	4000	50	4000	50	4000	100	4000	100	30	100	4000	100
LCL																
MAX	598.127	30.273	14.192	9.195	396.911	42.835	392.759	14.820	388.264	40.460	373.874	45.117	11.275	45.117	372.945	46.460
MIN	433.215	26.523	10.767	8.632	350.092	39.054	346.800	14.007	346.431	35.304	341.800	41.929	9.896	41.804	340.988	41.242
AVER	564.425	28.535	12.028	8.913	373.364	40.929	366.749	14.447	365.550	38.221	356.540	43.071	10.583	43.272	355.285	43.411
S	25.808	1.139	0.787	0.137	11.715	0.911	10.414	0.199	9.760	1.456	7.217	0.759	0.295	0.810	7.254	1.247
Ca																
Cp	44.373	6.279	7.608	99.872	103.195	3.319	116.299	59.485	124.123	14.141	168.271	25.010	21.966	23.349	167.483	15.121
CPK	44.373	6.279	7.608	99.872	103.195	3.319	116.299	59.485	124.123	14.141	168.271	25.010	21.966	23.349	167.483	15.121
RESULT	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF

Item	Combine						Combine					
Vin/Fin	264V/63Hz	240V/50Hz	180V/47Hz	264V/63Hz	240V/50Hz	180V/47Hz	180V/47Hz	240V/60Hz	265V/63Hz	180V/47Hz	240V/60Hz	265V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	17	18	19	20	21	22	23	24	25	26	27	28
1	19.375	19.875	19.375	0.219	0.093	0.219	19.875	19.381	19.875	0.092	0.218	0.093
2	19.431	19.937	19.437	0.232	0.099	0.232	19.937	19.443	19.937	0.1	0.234	0.1
3	19.437	19.931	19.443	0.219	0.097	0.22	19.931	19.45	19.931	0.098	0.219	0.098
4	19.406	19.918	19.418	0.228	0.099	0.229	19.918	19.418	19.918	0.099	0.228	0.099
5	19.525	20.018	19.537	0.226	0.094	0.226	20.018	19.537	20.018	0.094	0.226	0.094
6	19.475	19.981	19.481	0.238	0.094	0.235	19.981	19.481	19.981	0.094	0.237	0.095
7	19.462	19.925	19.468	0.225	0.089	0.225	19.925	19.468	19.925	0.089	0.226	0.09
8	19.425	19.9	19.425	0.238	0.097	0.237	19.9	19.431	19.9	0.097	0.239	0.098
9	19.531	20.012	19.531	0.234	0.095	0.233	20.012	19.537	20.012	0.095	0.233	0.096
10	19.406	19.887	19.406	0.228	0.096	0.227	19.893	19.412	19.887	0.097	0.228	0.097
11	19.437	19.9	19.437	0.226	0.095	0.224	19.906	19.437	19.906	0.095	0.23	0.095
12	19.412	19.875	19.418	0.231	0.1	0.232	19.868	19.418	19.868	0.1	0.232	0.101
13	19.525	20.012	19.537	0.227	0.096	0.225	20.012	19.537	20.012	0.096	0.227	0.097
14	19.406	19.868	19.406	0.225	0.095	0.231	19.868	19.412	19.868	0.094	0.224	0.096
15	19.35	19.806	19.35	0.226	0.087	0.223	19.806	19.356	19.806	0.087	0.224	0.088
16	19.4	19.862	19.412	0.22	0.09	0.22	19.862	19.412	19.862	0.09	0.219	0.09
17	19.481	19.962	19.487	0.23	0.096	0.234	19.962	19.493	19.968	0.095	0.231	0.097
18	19.487	19.981	19.5	0.244	0.104	0.242	19.981	19.506	19.981	0.104	0.244	0.105
19	19.468	19.943	19.481	0.239	0.105	0.238	19.943	19.481	19.943	0.105	0.239	0.105
20	19.412	19.893	19.418	0.242	0.097	0.245	19.893	19.425	19.893	0.097	0.242	0.098
21	19.543	20	19.55	0.221	0.088	0.218	20	19.55	20	0.088	0.22	0.089
22	19.406	19.868	19.412	0.225	0.095	0.226	19.868	19.412	19.868	0.094	0.226	0.095
23	19.325	19.768	19.331	0.225	0.099	0.226	19.768	19.331	19.768	0.099	0.226	0.1
24	19.518	19.968	19.518	0.23	0.101	0.229	19.968	19.518	19.962	0.101	0.229	0.102
25	19.487	19.9	19.487	0.239	0.099	0.24	19.9	19.493	19.9	0.099	0.237	0.099
26	19.418	19.862	19.418	0.233	0.097	0.239	19.868	19.425	19.868	0.096	0.234	0.098
27	19.381	19.856	19.387	0.226	0.089	0.225	19.85	19.393	19.85	0.089	0.225	0.09
28	19.462	19.881	19.462	0.228	0.094	0.227	19.887	19.462	19.881	0.094	0.229	0.095
29	19.468	19.906	19.475	0.242	0.099	0.237	19.906	19.475	19.906	0.098	0.241	0.099
30	19.4	19.875	19.406	0.222	0.095	0.223	19.875	19.406	19.875	0.095	0.223	0.096
31	19.35	19.831	19.356	0.231	0.095	0.227	19.825	19.356	19.825	0.096	0.23	0.096
32	19.381	19.856	19.381	0.233	0.095	0.23	19.856	19.393	19.856	0.095	0.232	0.096
33	19.425	19.9	19.425	0.229	0.096	0.229	19.906	19.431	19.906	0.096	0.229	0.097
34	19.425	19.9	19.425	0.229	0.096	0.229	19.906	19.431	19.906	0.096	0.229	0.097
35	19.425	19.893	19.431	0.234	0.097	0.234	19.893	19.431	19.893	0.097	0.234	0.098
36	19.356	19.818	19.356	0.238	0.102	0.238	19.825	19.362	19.825	0.102	0.237	0.103
37	19.318	19.793	19.318	0.228	0.09	0.228	19.793	19.318	19.793	0.09	0.227	0.09
38	19.381	19.868	19.393	0.229	0.101	0.228	19.875	19.393	19.875	0.101	0.229	0.102
39	19.468	19.937	19.475	0.225	0.094	0.225	19.937	19.475	19.937	0.094	0.226	0.094
40	19.681	20.137	19.687	0.238	0.097	0.238	20.137	19.693	20.143	0.097	0.238	0.097
41	19.381	19.9	19.387	0.227	0.091	0.224	19.9	19.393	19.9	0.091	0.226	0.092
42	19.55	19.987	19.55	0.23	0.095	0.234	19.987	19.556	19.987	0.095	0.23	0.096
43	19.468	19.943	19.475	0.223	0.088	0.223	19.943	19.481	19.943	0.086	0.222	0.088
44	19.387	19.881	19.393	0.224	0.09	0.222	19.881	19.4	19.881	0.09	0.224	0.09
45	19.35	19.831	19.356	0.228	0.096	0.227	19.831	19.362	19.831	0.097	0.227	0.097
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.681	20.137	19.687	0.244	0.105	0.245	20.137	19.693	20.143	0.105	0.244	0.105
MIN	19.318	19.768	19.318	0.219	0.087	0.218	19.768	19.318	19.768	0.086	0.218	0.088
AVER	19.436	19.908	19.440	0.230	0.095	0.229	19.908	19.444	19.908	0.095	0.230	0.096
S	0.069	0.069	0.070	0.006	0.004	0.006	0.068	0.070	0.069	0.004	0.006	0.004
Ca	0.370	0.185	0.364				0.186	0.360	0.186			
Cp	4.087	4.134	4.042	14.272	32.460	13.878	4.141	4.053	4.109	31.413	14.257	31.836
CPK	2.575	3.367	2.570	14.272	32.460	13.878	3.370	2.593	3.344	31.413	14.257	31.836
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Combine						Combine					
Vin/Fin	132V/63Hz	115V/60Hz	90V/47Hz	132V/63Hz	115V/60Hz	90V/47Hz	90V/47Hz	115V/60Hz	137V/63Hz	90V/47Hz	115V/60Hz	137V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	29	30	31	32	33	34	35	36	37	38	39	40
1	19.375	19.875	19.375	0.254	0.08	0.252	19.875	19.375	19.875	0.077	0.253	0.077
2	19.437	19.937	19.443	0.269	0.085	0.268	19.937	19.443	19.937	0.086	0.267	0.086
3	19.443	19.931	19.45	0.256	0.084	0.255	19.931	19.45	19.931	0.083	0.255	0.084
4	19.412	19.918	19.418	0.262	0.085	0.265	19.918	19.418	19.918	0.084	0.262	0.086
5	19.531	20.018	19.531	0.264	0.078	0.261	20.018	19.537	20.018	0.077	0.26	0.079
6	19.481	19.981	19.487	0.273	0.075	0.273	19.981	19.487	19.981	0.075	0.273	0.077
7	19.462	19.925	19.456	0.261	0.072	0.26	19.925	19.456	19.925	0.07	0.26	0.071
8	19.418	19.9	19.431	0.277	0.079	0.275	19.9	19.431	19.9	0.077	0.277	0.081
9	19.525	20.012	19.531	0.273	0.077	0.271	20.012	19.531	20.012	0.076	0.271	0.082
10	19.412	19.887	19.412	0.264	0.082	0.263	19.887	19.412	19.887	0.08	0.263	0.083
11	19.431	19.9	19.431	0.261	0.082	0.261	19.9	19.437	19.9	0.081	0.26	0.083
12	19.412	19.868	19.406	0.267	0.087	0.267	19.868	19.4	19.868	0.087	0.265	0.088
13	19.531	20.012	19.543	0.264	0.08	0.262	20.012	19.537	20.012	0.08	0.262	0.083
14	19.4	19.868	19.406	0.262	0.082	0.262	19.868	19.406	19.868	0.079	0.262	0.082
15	19.343	19.806	19.35	0.259	0.078	0.256	19.8	19.35	19.8	0.077	0.256	0.078
16	19.406	19.862	19.406	0.255	0.075	0.255	19.862	19.412	19.862	0.075	0.254	0.076
17	19.493	19.962	19.493	0.269	0.083	0.269	19.962	19.493	19.962	0.08	0.268	0.081
18	19.5	19.981	19.506	0.283	0.089	0.28	19.981	19.506	19.981	0.087	0.282	0.088
19	19.475	19.943	19.481	0.275	0.088	0.273	19.943	19.481	19.943	0.089	0.275	0.089
20	19.418	19.893	19.425	0.278	0.083	0.28	19.887	19.431	19.887	0.079	0.277	0.081
21	19.537	20	19.543	0.254	0.071	0.255	20	19.543	20	0.069	0.256	0.073
22	19.406	19.868	19.406	0.26	0.082	0.26	19.868	19.412	19.868	0.081	0.259	0.082
23	19.318	19.768	19.318	0.262	0.088	0.26	19.768	19.318	19.768	0.086	0.26	0.087
24	19.518	19.968	19.518	0.264	0.086	0.268	19.962	19.518	19.962	0.085	0.266	0.086
25	19.475	19.9	19.475	0.276	0.085	0.27	19.9	19.475	19.9	0.083	0.272	0.085
26	19.418	19.862	19.418	0.27	0.083	0.269	19.862	19.418	19.868	0.082	0.269	0.082
27	19.387	19.85	19.393	0.258	0.07	0.258	19.85	19.393	19.856	0.07	0.257	0.071
28	19.456	19.881	19.456	0.263	0.08	0.264	19.881	19.456	19.881	0.079	0.264	0.082
29	19.462	19.906	19.468	0.277	0.085	0.274	19.906	19.468	19.906	0.082	0.273	0.083
30	19.393	19.875	19.4	0.26	0.082	0.256	19.875	19.4	19.875	0.081	0.256	0.083
31	19.35	19.825	19.35	0.269	0.08	0.263	19.825	19.343	19.825	0.078	0.266	0.083
32	19.381	19.856	19.387	0.27	0.081	0.267	19.856	19.387	19.856	0.079	0.268	0.081
33	19.425	19.9	19.431	0.267	0.08	0.266	19.906	19.431	19.9	0.079	0.265	0.081
34	19.425	19.9	19.431	0.267	0.08	0.266	19.906	19.431	19.9	0.079	0.265	0.081
35	19.425	19.893	19.431	0.271	0.078	0.274	19.893	19.431	19.887	0.077	0.272	0.079
36	19.35	19.818	19.356	0.275	0.089	0.274	19.818	19.362	19.818	0.088	0.273	0.088
37	19.318	19.8	19.318	0.264	0.073	0.265	19.793	19.318	19.793	0.072	0.264	0.074
38	19.387	19.875	19.393	0.266	0.087	0.263	19.875	19.393	19.875	0.086	0.263	0.087
39	19.468	19.937	19.475	0.26	0.08	0.258	19.937	19.475	19.937	0.079	0.259	0.081
40	19.681	20.137	19.687	0.278	0.081	0.274	20.137	19.687	20.137	0.08	0.274	0.083
41	19.393	19.9	19.4	0.262	0.077	0.263	19.9	19.406	19.9	0.076	0.26	0.078
42	19.537	19.987	19.543	0.267	0.08	0.266	19.987	19.543	19.987	0.079	0.265	0.08
43	19.468	19.943	19.481	0.255	0.071	0.252	19.943	19.481	19.943	0.069	0.253	0.07
44	19.393	19.881	19.4	0.259	0.073	0.258	19.881	19.4	19.881	0.07	0.26	0.076
45	19.356	19.831	19.356	0.263	0.084	0.262	19.831	19.362	19.831	0.084	0.262	0.085
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.681	20.137	19.687	0.283	0.089	0.280	20.137	19.687	20.137	0.089	0.282	0.089
MIN	19.318	19.768	19.318	0.254	0.070	0.252	19.768	19.318	19.768	0.069	0.253	0.070
AVER	19.436	19.908	19.440	0.266	0.081	0.265	19.907	19.441	19.907	0.079	0.265	0.081
S	0.069	0.069	0.070	0.007	0.005	0.007	0.069	0.070	0.069	0.005	0.007	0.005
Ca	0.369	0.185	0.364				0.185	0.364	0.185			
Cp	4.098	4.133	4.049	10.754	28.083	11.043	4.111	4.066	4.119	27.253	11.108	29.694
CPK	2.585	3.367	2.574	10.754	28.083	11.043	3.350	2.588	3.358	27.253	11.108	29.694
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Dynamic		Dynamic		Dynamic		Dynamic		load regulation						INPUT/OUTPUT		
Vin/Fin	90V/60Hz		100V/60Hz		240V/50Hz		264V/50Hz		264V/50Hz						264V/50Hz		
Load	0~4.5A		4.5~0A		0~4.5A		4.5~0A		4.51A		5A		5.5A		4.51A		
Item Content	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vpp-1	Vdc-2	Vpp-2	Vdc-3	Vpp-3	Irms	EFF	PFC
NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
1	19.9	19.3	19.343	19.887	19.900	19.293	19.375	19.893	19.356	0.217	19.312	0.240	19.275	0.264	0.400	86.315	0.958
2	19.956	19.393	19.437	19.956	19.962	19.406	19.468	19.950	19.456	0.232	19.381	0.256	19.343	0.277	0.402	86.289	0.956
3	19.956	19.481	19.406	19.956	19.962	19.487	19.468	19.962	19.462	0.221	19.400	0.242	19.350	0.265	0.402	86.515	0.954
4	19.943	19.425	19.475	19.937	19.943	19.443	19.418	19.943	19.425	0.227	19.375	0.250	19.337	0.276	0.402	86.302	0.956
5	20.043	19.568	19.475	20.037	20.050	19.543	19.568	20.043	19.550	0.224	19.487	0.247	19.450	0.271	0.403	86.334	0.959
6	20.006	19.425	19.468	20.000	20.000	19.543	19.456	20.000	19.500	0.237	19.443	0.260	19.393	0.285	0.402	86.312	0.958
7	19.95	19.393	19.487	19.956	19.956	19.493	19.462	19.956	19.468	0.228	19.425	0.248	19.381	0.271	0.402	86.307	0.957
8	19.925	19.362	19.393	19.912	19.925	19.387	19.393	19.918	19.431	0.239	19.381	0.262	19.337	0.286	0.402	86.337	0.955
9	20.043	19.587	19.518	20.037	20.043	19.512	19.487	20.037	19.543	0.234	19.487	0.257	19.450	0.279	0.402	86.581	0.958
10	19.906	19.45	19.381	19.906	19.912	19.443	19.368	19.912	19.418	0.227	19.362	0.251	19.318	0.273	0.402	86.284	0.955
11	19.925	19.481	19.381	19.925	19.931	19.393	19.487	19.918	19.443	0.224	19.393	0.247	19.350	0.269	0.401	86.555	0.956
12	19.893	19.443	19.343	19.893	19.900	19.431	19.437	19.893	19.418	0.231	19.362	0.254	19.318	0.278	0.401	86.350	0.957
13	20.037	19.5	19.556	20.025	20.037	19.556	19.500	20.031	19.550	0.226	19.500	0.248	19.450	0.273	0.404	86.447	0.955
14	19.893	19.35	19.437	19.893	19.893	19.437	19.456	19.887	19.418	0.225	19.362	0.250	19.318	0.270	0.400	86.458	0.958
15	19.825	19.387	19.312	19.825	19.831	19.337	19.393	19.825	19.362	0.223	19.306	0.247	19.256	0.271	0.399	86.538	0.956
16	19.906	19.343	19.368	19.887	19.900	19.387	19.437	19.893	19.418	0.219	19.368	0.241	19.318	0.264	0.398	86.831	0.959
17	19.987	19.456	19.556	19.981	19.987	19.506	19.456	19.981	19.500	0.231	19.450	0.254	19.400	0.281	0.404	86.125	0.956
18	20	19.556	19.525	19.993	20.006	19.468	19.493	20.006	19.518	0.243	19.462	0.269	19.412	0.295	0.402	86.303	0.960
19	19.962	19.418	19.450	19.962	19.962	19.531	19.531	19.962	19.487	0.239	19.437	0.262	19.387	0.287	0.404	86.133	0.956
20	19.912	19.375	19.437	19.912	19.912	19.468	19.412	19.912	19.431	0.240	19.375	0.264	19.325	0.287	0.403	85.887	0.957
21	20.025	19.562	19.568	20.025	20.018	19.556	19.562	20.025	19.556	0.219	19.506	0.243	19.450	0.267	0.403	86.334	0.958
22	19.893	19.462	19.368	19.887	19.893	19.462	19.456	19.900	19.418	0.226	19.368	0.247	19.318	0.269	0.401	86.532	0.954
23	19.793	19.368	19.268	19.787	19.800	19.362	19.362	19.793	19.325	0.226	19.281	0.248	19.231	0.271	0.399	86.426	0.956
24	19.987	19.475	19.562	19.987	19.987	19.531	19.481	19.987	19.525	0.229	19.475	0.252	19.425	0.274	0.403	86.529	0.955
25	19.931	19.412	19.493	19.925	19.937	19.418	19.431	19.931	19.500	0.238	19.443	0.262	19.387	0.288	0.401	86.474	0.958
26	19.887	19.468	19.425	19.881	19.887	19.468	19.375	19.881	19.431	0.234	19.375	0.258	19.331	0.280	0.401	86.417	0.956
27	19.875	19.35	19.437	19.868	19.868	19.418	19.350	19.875	19.406	0.224	19.350	0.246	19.312	0.269	0.400	86.266	0.959
28	19.906	19.431	19.393	19.906	19.912	19.406	19.481	19.906	19.468	0.229	19.418	0.252	19.368	0.277	0.401	86.413	0.958
29	19.931	19.412	19.437	19.925	19.937	19.425	19.425	19.931	19.481	0.239	19.425	0.262	19.381	0.287	0.402	86.571	0.955
30	19.9	19.45	19.337	19.900	19.906	19.381	19.431	19.900	19.418	0.223	19.368	0.244	19.312	0.267	0.401	86.389	0.957
31	19.85	19.35	19.393	19.850	19.862	19.375	19.337	19.856	19.362	0.230	19.312	0.252	19.262	0.275	0.400	86.206	0.959
32	19.875	19.343	19.418	19.875	19.881	19.381	19.418	19.875	19.400	0.232	19.343	0.254	19.293	0.282	0.400	86.306	0.958
33	19.918	19.387	19.437	19.918	19.925	19.418	19.387	19.918	19.437	0.228	19.387	0.253	19.331	0.276	0.402	86.309	0.956
34	19.918	19.387	19.437	19.918	19.925	19.418	19.387	19.918	19.437	0.228	19.387	0.253	19.331	0.276	0.402	86.309	0.956
35	19.906	19.487	19.368	19.912	19.918	19.475	19.412	19.918	19.443	0.236	19.387	0.257	19.331	0.281	0.400	86.470	0.958
36	19.843	19.4	19.331	19.843	19.850	19.325	19.318	19.850	19.375	0.237	19.312	0.260	19.268	0.284	0.400	86.376	0.956
37	19.812	19.343	19.262	19.812	19.818	19.343	19.275	19.812	19.325	0.227	19.268	0.250	19.218	0.274	0.399	86.239	0.958
38	19.893	19.406	19.350	19.893	19.893	19.387	19.375	19.900	19.400	0.228	19.343	0.250	19.293	0.274	0.402	86.212	0.955
39	19.962	19.487	19.437	19.962	19.962	19.437	19.425	19.956	19.481	0.224	19.431	0.247	19.387	0.270	0.402	86.360	0.958
40	20.162	19.737	19.743	20.162	20.162	19.637	19.675	20.162	19.700	0.237	19.650	0.260	19.593	0.286	0.404	86.678	0.959
41	19.912	19.431	19.412	19.918	19.918	19.450	19.450	19.918	19.412	0.227	19.350	0.249	19.306	0.273	0.402	86.028	0.958
42	20.025	19.55	19.600	20.012	20.025	19.575	19.525	20.031	19.562	0.231	19.506	0.252	19.456	0.274	0.403	86.426	0.958
43	19.968	19.518	19.506	19.962	19.975	19.450	19.506	19.975	19.500	0.224	19.443	0.245	19.393	0.263	0.402	86.390	0.959
44	19.9	19.45	19.356	19.900	19.912	19.356	19.418	19.906	19.412	0.224	19.356	0.246	19.306	0.269	0.401	86.360	0.956
45	19.856	19.393	19.412	19.850	19.862	19.312	19.343	19.862	19.375	0.228	19.312	0.249	19.268	0.273	0.400	86.328	0.957
UNIT	V	V	V	V	V	V	V	V	V	V	V	V	V	V	A	%	
UCL	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	0.50	20.6	0.50	20.6	0.50	0.7		
LCL	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9		18.9		18.9			83	0.9
MAX	20.162	19.737	19.743	20.162	20.162	19.637	19.675	20.162	19.700	0.243	19.650	0.269	19.593	0.295	0.404	86.831	0.960
MIN	19.793	19.300	19.262	19.787	19.800	19.293	19.275	19.793	19.325	0.217	19.268	0.240	19.218	0.263	0.398	85.887	0.954
AVER	19.931	19.439	19.433	19.928	19.934	19.441	19.437	19.931	19.451	0.229	19.397	0.252	19.349	0.276	0.401	86.368	0.957
S	0.070	0.082	0.091	0.069	0.068	0.076	0.072	0.069	0.071	0.006	0.072	0.007	0.071	0.008	0.001	0.163	0.002
Ca	0.213	0.366	0.373	0.209	0.217	0.364	0.368	0.213	0.352		0.415		0.471				
Cp	4.063	3.459	3.105	4.098	4.155	3.749	3.909	4.102	3.969	14.471	3.949	12.323	4.004	9.958	69.119	6.884	12.599
CPK	3.198	2.193	1.948	3.240	3.254	2.385	2.470	3.227	2.574	14.471	2.309	12.323	2.116	9.958	69.119	6.884	12.599
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	REF

Item	INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			HOLD-UP	POWER LOSS
Vin/Fin	230V/50Hz			180V/50Hz			137V/50Hz			115V/60Hz			90V/60Hz			90V/60Hz	240V/50Hz
Load	4.51A			4.51A			4.51A			4.51A			4.51A			4.51A	0A
Item Content	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Hold-up time	Pin
NO.	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74*
1	0.451	86.089	0.978	0.603	86.336	0.931	0.757	87.273	0.965	0.884	86.592	0.992	1.164	84.906	0.984	27.405	0.684
2	0.452	86.346	0.976	0.571	86.023	0.992	0.759	87.311	0.965	0.883	86.689	0.997	1.157	85.226	0.991	27.242	0.672
3	0.452	86.449	0.975	0.594	86.316	0.950	0.760	87.473	0.963	0.882	86.931	0.995	1.156	85.214	0.992	27.430	0.702
4	0.451	86.236	0.979	0.571	85.971	0.992	0.759	87.334	0.965	0.883	86.712	0.996	1.156	85.168	0.992	27.006	0.696
5	0.454	86.332	0.978	0.600	86.228	0.946	0.763	87.324	0.965	0.887	86.732	0.997	1.162	85.185	0.992	27.333	0.702
6	0.453	86.245	0.977	0.572	85.982	0.993	0.764	87.356	0.962	0.886	86.751	0.995	1.165	85.122	0.988	27.466	0.714
7	0.453	86.239	0.977	0.595	86.002	0.953	0.758	87.340	0.968	0.885	86.701	0.996	1.159	85.115	0.991	27.177	0.69
8	0.451	86.204	0.979	0.592	86.111	0.955	0.763	87.306	0.960	0.888	86.631	0.991	1.169	84.975	0.983	26.538	0.726
9	0.453	86.268	0.980	0.591	86.202	0.961	0.767	87.359	0.960	0.886	86.839	0.997	1.162	85.211	0.991	27.538	0.696
10	0.452	86.125	0.977	0.571	85.776	0.992	0.758	87.288	0.966	0.886	86.658	0.992	1.164	85.026	0.985	27.504	0.672
11	0.451	86.452	0.977	0.593	86.243	0.951	0.760	87.447	0.962	0.881	86.878	0.996	1.156	85.286	0.990	27.359	0.678
12	0.451	86.085	0.980	0.594	86.019	0.952	0.759	87.222	0.964	0.882	86.601	0.997	1.160	84.969	0.989	27.233	0.702
13	0.454	86.372	0.977	0.573	85.986	0.993	0.765	87.378	0.962	0.887	86.824	0.996	1.165	85.185	0.990	26.934	0.678
14	0.450	86.324	0.979	0.611	86.591	0.918	0.758	87.385	0.964	0.882	86.788	0.995	1.159	85.177	0.987	27.144	0.714
15	0.449	86.451	0.977	0.588	86.338	0.955	0.755	87.578	0.963	0.876	86.916	0.997	1.147	85.410	0.992	27.920	0.696
16	0.449	86.658	0.977	0.567	86.257	0.993	0.753	87.804	0.966	0.879	87.120	0.994	1.153	85.580	0.988	27.520	0.702
17	0.455	85.890	0.977	0.627	86.021	0.905	0.763	87.139	0.966	0.888	86.535	0.996	1.163	84.865	0.992	26.920	0.69
18	0.453	86.151	0.979	0.574	85.974	0.990	0.760	87.343	0.968	0.889	86.706	0.993	1.173	85.028	0.983	27.122	0.702
19	0.454	86.060	0.977	0.573	85.732	0.993	0.764	87.185	0.962	0.885	86.693	0.996	1.159	85.142	0.992	27.764	0.72
20	0.454	85.782	0.977	0.608	85.755	0.932	0.760	86.966	0.967	0.887	86.231	0.996	1.166	84.615	0.989	27.483	0.69
21	0.454	86.202	0.978	0.578	86.005	0.984	0.765	87.378	0.962	0.886	86.924	0.997	1.160	85.288	0.992	27.662	0.696
22	0.451	86.257	0.977	0.583	86.040	0.968	0.758	87.412	0.964	0.882	86.735	0.995	1.160	85.132	0.987	27.358	0.69
23	0.449	86.426	0.976	0.600	86.340	0.934	0.755	87.485	0.962	0.876	86.884	0.996	1.146	85.393	0.992	27.130	0.69
24	0.453	86.463	0.976	0.572	86.131	0.992	0.761	87.430	0.965	0.886	86.863	0.995	1.166	85.206	0.987	26.729	0.672
25	0.452	86.360	0.977	0.601	86.492	0.938	0.760	87.566	0.962	0.884	86.877	0.994	1.166	85.137	0.985	27.215	0.72
26	0.450	86.350	0.979	0.610	86.685	0.920	0.760	87.443	0.961	0.880	86.873	0.996	1.150	85.363	0.994	27.479	0.69
27	0.451	86.200	0.977	0.595	86.075	0.948	0.760	87.412	0.961	0.879	86.935	0.997	1.151	85.261	0.993	27.882	0.678
28	0.452	86.250	0.977	0.576	85.949	0.985	0.761	87.403	0.963	0.883	86.769	0.996	1.160	85.142	0.989	27.066	0.678
29	0.452	86.399	0.977	0.599	86.267	0.944	0.763	87.418	0.960	0.882	86.824	0.997	1.157	85.330	0.991	26.817	0.72
30	0.451	86.218	0.978	0.594	86.191	0.949	0.756	87.392	0.967	0.880	86.796	0.997	1.155	85.202	0.990	27.497	0.69
31	0.450	86.100	0.979	0.569	85.798	0.993	0.755	87.187	0.967	0.882	86.565	0.994	1.159	84.957	0.987	27.050	0.702
32	0.450	86.306	0.978	0.590	86.173	0.954	0.756	87.413	0.965	0.879	86.843	0.997	1.154	85.336	0.990	27.601	0.678
33	0.452	86.204	0.977	0.597	86.177	0.946	0.757	87.306	0.967	0.885	86.604	0.995	1.162	84.975	0.989	27.053	0.696
34	0.452	86.204	0.977	0.597	86.177	0.946	0.757	87.306	0.967	0.885	86.604	0.995	1.162	84.975	0.989	27.053	0.702
35	0.450	86.407	0.980	0.584	86.072	0.968	0.756	87.427	0.967	0.884	86.804	0.994	1.162	85.142	0.986	27.380	0.69
36	0.449	86.300	0.979	0.605	86.462	0.926	0.756	87.461	0.963	0.878	86.835	0.996	1.150	85.269	0.992	27.306	0.69
37	0.449	86.039	0.979	0.568	85.748	0.993	0.753	87.219	0.968	0.880	86.583	0.994	1.158	84.944	0.986	27.716	0.66
38	0.452	86.079	0.976	0.584	85.870	0.969	0.757	87.249	0.966	0.881	86.654	0.997	1.153	85.110	0.993	27.029	0.69
39	0.453	86.160	0.977	0.601	86.160	0.941	0.765	87.406	0.959	0.882	86.773	0.999	1.155	85.245	0.994	27.247	0.702
40	0.456	86.506	0.978	0.585	86.414	0.975	0.767	87.529	0.965	0.894	86.938	0.994	1.177	85.241	0.985	27.434	0.684
41	0.452	85.908	0.979	0.577	85.598	0.984	0.761	87.059	0.964	0.886	86.440	0.995	1.168	84.744	0.984	26.964	0.678
42	0.454	86.360	0.977	0.603	86.228	0.941	0.763	87.486	0.963	0.886	86.904	0.996	1.163	85.263	0.990	27.278	0.69
43	0.452	86.378	0.978	0.624	86.684	0.902	0.763	87.453	0.961	0.883	86.885	0.997	1.157	85.366	0.992	27.914	0.684
44	0.451	86.293	0.977	0.574	85.962	0.984	0.760	87.385	0.961	0.881	86.789	0.995	1.158	85.228	0.988	27.509	0.672
45	0.449	86.328	0.979	0.567	85.996	0.994	0.757	87.421	0.963	0.882	86.811	0.992	1.157	85.195	0.987	26.946	0.672
UNIT	A	%		A	%		A	%		A	%		A	%		mS	W
UCL	0.7			1.5			1.5			1.5			1.5				1.0
LCL		83	0.9		83	0.8		83	0.9		83	0.9		83	0.9	10	
MAX	0.456	86.658	0.980	0.627	86.685	0.994	0.767	87.804	0.968	0.894	87.120	0.999	1.177	85.580	0.994	27.92	0.726
MIN	0.449	85.782	0.975	0.567	85.598	0.902	0.753	86.966	0.959	0.876	86.231	0.991	1.146	84.615	0.983	26.538	0.660
AVER	0.452	86.255	0.978	0.589	86.123	0.961	0.760	87.366	0.964	0.883	86.756	0.995	1.160	85.152	0.989	27.297	0.692
S	0.002	0.170	0.001	0.015	0.247	0.027	0.004	0.140	0.002	0.004	0.156	0.002	0.006	0.180	0.003	0.311	0.015
Ca																	
Cp	47.280	6.378	21.809	19.758	4.219	2.005	69.216	10.431	8.638	58.211	8.024	19.182	17.998	3.985	9.827	18.516	6.882
CPK	47.280	6.378	21.809	19.758	4.219	2.005	69.216	10.431	8.638	58.211	8.024	19.182	17.998	3.985	9.827	18.516	6.882
RESULT	OK	OK	OK	OK	OK	REF	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

COMMENT : ITEM74* DATAS TEST WITH WT-110 (TEST TIME 1 MINUTE)



lite-On Electronics (DG) Co. Ltd.
光寶電子(東莞)有限公司

CPK REPORT (mixing source-2)

CUSTOMER :

DELL

PROJECT NAME :

COMANECI

DELL P/N :

6G356

MODEL

PA-1900-05D

PREPARED BY :

陸全東
1.18'02

CHECKED BY :

王東 1/26'02

APPROVED BY :

for Peter
Kia

Item	Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on	
Vin/Fin	90V/47Hz		90V/60Hz		115V/60Hz		132V/63Hz		180V/47Hz		240V/50Hz		240V/50Hz		264V/63Hz	
Load	4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A	
Item Content	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush
NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	577.86	27.585	14.367	9.382	384.442	40.804	381.844	15.164	380.354	39.148	388.507	42.335	10.544	44.867	382.491	43.054
2	580.014	29.179	15.953	9.164	405.535	41.648	386.948	14.664	383.708	35.742	361.914	42.367	11.014	42.585	360.697	44.242
3	558.819	28.117	13.604	9.32	352.997	41.554	350.962	15.07	350.696	41.148	347.101	41.148	11.012	42.867	344.947	45.867
4	566.912	24.554	13.394	9.257	424.154	41.023	426.612	14.789	409.552	39.117	351.72	44.773	11.014	42.054	350.842	41.96
5	568.183	28.523	12.95	9.382	358.691	42.429	363.586	15.132	362.393	40.554	351.804	45.054	10.544	41.867	350.255	41.242
6	583.645	27.648	16.037	8.882	391.12	42.273	382.799	14.32	379.256	39.054	363.134	42.71	10.895	44.148	362.009	42.71
7	568.088	27.398	11.094	8.632	362.53	40.21	360.37	14.289	360.11	39.617	356.105	43.304	10.697	44.867	353.996	43.523
8	561.192	26.742	14.274	8.976	373.618	39.804	368.933	14.476	368.016	39.992	361.977	42.804	10.476	43.585	361.005	44.367
9	587.358	27.429	16.118	8.945	371.105	41.46	370.673	14.539	370.619	36.054	365.808	43.304	12.927	44.492	364.903	42.023
10	580.428	30.242	10.943	9.195	396.328	41.523	385.572	15.007	381.039	35.679	366.129	44.242	11.019	42.929	364.347	45.96
11	560.207	27.554	12.084	9.039	356.219	40.992	353.964	14.695	353.733	39.429	349.822	42.492	11.041	44.992	348.32	43.304
12	581.385	28.492	16.023	9.257	379.886	41.71	369.64	14.914	369.891	37.835	364.651	43.367	11.019	44.054	363.55	41.96
13	567.453	30.21	14.149	9.164	386.113	42.679	363.955	14.789	361.529	40.304	350.606	43.179	10.819	42.773	349.652	40.835
14	589.802	29.023	13.888	8.757	391.158	42.773	376.406	14.257	374.084	35.304	370.449	42.929	11.275	42.742	368.572	41.304
15	577.983	30.085	13.47	9.07	367.749	39.679	363.946	14.57	363.498	39.773	358.59	43.367	9.773	43.054	357.114	42.117
16	578.186	29.054	15.097	8.82	381.025	41.304	365.915	14.195	364.681	40.648	358.787	42.992	10.752	43.242	356.861	42.335
17	571.827	27.023	14.57	9.07	393.909	40.023	381.683	14.695	377.874	37.679	355.326	42.304	10.752	43.304	354.845	42.867
18	571.827	27.023	14.57	9.07	393.909	40.023	381.683	14.695	377.874	37.679	355.326	42.304	10.752	43.304	354.845	42.867
19	570.128	28.117	13.141	9.039	360.957	41.304	359.06	14.632	358.561	39.648	352.268	43.742	10.773	43.054	351.536	43.46
20	565.618	29.117	11.13	8.632	360.188	41.617	356.038	14.164	355.422	35.398	351.336	42.117	10.778	43.617	350.057	43.335
21	571.31	30.054	15.847	9.226	377.435	40.96	364.662	14.789	363.431	39.148	356.016	42.742	11.015	44.085	354.484	42.929
22	582.277	29.523	15.299	8.851	400.937	40.867	386.616	14.257	382.313	35.929	363.999	43.085	10.778	41.835	362.344	45.117
23	583.221	28.117	15.64	8.882	372.242	40.242	370.226	14.32	369.992	39.179	366.067	42.148	10.481	44.273	364.716	45.085
24	588.489	28.304	16.003	8.945	406.866	40.054	400.687	14.382	396.436	40.117	366.856	43.117	11.778	41.71	364.92	44.023
25	567.484	29.242	14.806	9.257	358.733	40.335	355.723	14.945	355.53	39.679	352.503	43.085	11.015	43.367	350.364	43.773
26	571.85	27.304	13.892	9.07	361.811	40.242	360.944	14.695	360.854	39.117	356.782	42.554	10.778	44.835	354.327	42.742
27	588.506	28.617	10.906	8.664	397.329	39.429	401.082	14.07	397.373	38.71	368.028	42.742	11.015	42.273	366.363	45.148
28	569.941	29.742	10.558	8.757	367.145	43.117	363.19	14.382	362.71	38.492	357.561	44.679	9.548	42.21	356.735	46.367
29	567.72	27.929	15.424	9.132	368.233	39.929	360.922	14.632	359.705	38.742	351.524	43.367	10.571	43.148	349.851	43.273
30	576.722	27.21	13.054	9.226	363.129	39.992	360.804	14.695	360.455	39.085	356.04	42.085	10.548	42.992	354.434	42.054
UNIT	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A
UCL	4000	50	30	50	4000	50	4000	50	4000	100	4000	100	30	100	4000	100
LCL																
MAX	589.802	30.242	16.118	9.382	424.154	43.117	426.612	15.164	409.552	41.148	388.507	45.054	12.927	44.992	382.491	46.367
MIN	558.819	24.554	10.558	8.632	352.997	39.429	350.962	14.070	350.696	35.304	347.101	41.148	9.548	41.710	344.947	40.835
AVER	574.481	28.305	13.943	9.035	378.850	41.000	372.515	14.607	370.390	38.600	359.225	43.015	10.847	43.304	357.646	43.328
S	8.764	1.260	1.739	0.218	18.099	1.005	16.645	0.299	13.986	1.688	8.398	0.855	0.562	0.961	7.864	1.444
Ca																
Cp	130.288	5.738	3.078	62.603	66.692	2.986	72.645	39.393	86.509	12.121	144.505	22.206	11.351	19.667	154.386	13.086
CPK	130.288	5.738	3.078	62.603	66.692	2.986	72.645	39.393	86.509	12.121	144.505	22.206	11.351	19.667	154.386	13.086
RESULT	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF

Item	Combine						Combine					
Vin/Fin	264V/63Hz	240V/50Hz	180V/47Hz	264V/63Hz	240V/50Hz	180V/47Hz	180V/47Hz	240V/60Hz	265V/63Hz	180V/47Hz	240V/60Hz	265V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	17	18	19	20	21	22	23	24	25	26	27	28
1	19.468	19.937	19.475	0.223	0.084	0.225	19.937	19.475	19.943	0.083	0.223	0.084
2	19.362	19.868	19.368	0.234	0.101	0.232	19.868	19.375	19.862	0.101	0.232	0.102
3	19.512	19.993	19.512	0.229	0.094	0.231	19.987	19.512	19.987	0.094	0.229	0.095
4	19.431	19.912	19.431	0.234	0.097	0.235	19.912	19.437	19.912	0.097	0.232	0.098
5	19.568	20.043	19.568	0.231	0.102	0.232	20.043	19.575	20.037	0.102	0.231	0.102
6	19.5	19.956	19.506	0.23	0.094	0.23	19.956	19.506	19.956	0.094	0.23	0.095
7	19.412	19.875	19.412	0.236	0.096	0.242	19.875	19.418	19.875	0.096	0.237	0.097
8	19.518	19.956	19.518	0.224	0.092	0.22	19.956	19.518	19.956	0.092	0.222	0.093
9	19.531	20.006	19.537	0.228	0.091	0.224	20.006	19.537	20.006	0.091	0.227	0.091
10	19.481	19.968	19.481	0.232	0.096	0.232	19.968	19.493	19.968	0.096	0.232	0.097
11	19.425	19.912	19.431	0.23	0.092	0.227	19.918	19.431	19.918	0.092	0.229	0.093
12	19.431	19.918	19.437	0.236	0.091	0.241	19.918	19.437	19.918	0.091	0.237	0.092
13	19.493	19.975	19.5	0.238	0.094	0.234	19.975	19.5	19.975	0.094	0.235	0.095
14	19.35	19.85	19.356	0.224	0.094	0.232	19.85	19.362	19.85	0.093	0.225	0.095
15	19.581	20.05	19.581	0.239	0.102	0.242	20.05	19.581	20.05	0.102	0.24	0.103
16	19.443	19.925	19.45	0.232	0.097	0.234	19.925	19.443	19.925	0.096	0.233	0.098
17	19.443	19.931	19.45	0.233	0.1	0.23	19.931	19.45	19.931	0.1	0.236	0.1
18	19.443	19.931	19.45	0.233	0.1	0.23	19.931	19.45	19.931	0.1	0.236	0.1
19	19.468	19.981	19.487	0.236	0.097	0.234	19.975	19.487	19.975	0.098	0.236	0.098
20	19.493	19.981	19.487	0.23	0.097	0.229	19.981	19.468	19.981	0.096	0.231	0.097
21	19.356	19.868	19.356	0.227	0.092	0.228	19.868	19.356	19.868	0.092	0.226	0.093
22	19.5	19.993	19.493	0.232	0.095	0.232	19.993	19.5	19.987	0.095	0.232	0.095
23	19.487	19.981	19.493	0.23	0.097	0.231	19.981	19.5	19.981	0.097	0.232	0.098
24	19.418	19.9	19.418	0.224	0.093	0.226	19.9	19.425	19.9	0.092	0.225	0.093
25	19.475	19.943	19.475	0.23	0.1	0.234	19.943	19.481	19.943	0.098	0.228	0.1
26	19.412	19.881	19.425	0.231	0.096	0.235	19.887	19.431	19.881	0.096	0.231	0.097
27	19.443	19.937	19.45	0.233	0.096	0.231	19.937	19.456	19.937	0.097	0.233	0.097
28	19.456	19.925	19.462	0.243	0.098	0.235	19.918	19.468	19.925	0.098	0.238	0.098
29	19.481	19.95	19.481	0.229	0.096	0.23	19.95	19.487	19.95	0.096	0.228	0.097
30	19.581	20.062	19.587	0.227	0.093	0.23	20.056	19.593	20.056	0.093	0.228	0.094
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.581	20.062	19.587	0.243	0.102	0.242	20.056	19.593	20.056	0.102	0.240	0.103
MIN	19.350	19.850	19.356	0.223	0.084	0.220	19.850	19.356	19.850	0.083	0.222	0.084
AVER	19.465	19.947	19.469	0.231	0.096	0.232	19.947	19.472	19.946	0.095	0.231	0.096
S	0.059	0.054	0.058	0.005	0.004	0.005	0.053	0.058	0.053	0.004	0.005	0.004
Ca	0.335	0.232	0.330				0.231	0.327	0.231			
Cp	4.789	5.257	4.860	19.252	35.200	18.406	5.353	4.885	5.365	34.344	19.712	35.225
CPK	3.186	4.039	3.255	19.252	35.200	18.406	4.116	3.286	4.127	34.344	19.712	35.225
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Combine						Combine					
Vin/Fin	132V/63Hz	115V/60Hz	90V/47Hz	132V/63Hz	115V/60Hz	90V/47Hz	90V/47Hz	115V/60Hz	137V/63Hz	90V/47Hz	115V/60Hz	137V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	29	30	31	32	33	34	35	36	37	38	39	40
1	19.468	19.943	19.475	0.257	0.07	0.256	19.943	19.475	19.937	0.068	0.257	0.068
2	19.375	19.868	19.381	0.268	0.089	0.268	19.868	19.381	19.868	0.088	0.269	0.089
3	19.506	19.987	19.512	0.263	0.081	0.261	19.987	19.518	19.987	0.079	0.263	0.081
4	19.431	19.912	19.437	0.267	0.083	0.268	19.912	19.437	19.912	0.08	0.266	0.082
5	19.568	20.043	19.575	0.267	0.086	0.267	20.043	19.575	20.043	0.085	0.267	0.087
6	19.5	19.956	19.5	0.269	0.076	0.263	19.956	19.506	19.956	0.074	0.262	0.076
7	19.406	19.875	19.412	0.268	0.083	0.27	19.875	19.412	19.875	0.08	0.269	0.081
8	19.506	19.956	19.506	0.255	0.076	0.255	19.956	19.512	19.956	0.072	0.256	0.074
9	19.525	20.006	19.537	0.258	0.075	0.257	20.006	19.543	20.006	0.072	0.257	0.074
10	19.487	19.968	19.493	0.264	0.085	0.264	19.962	19.493	19.968	0.082	0.263	0.084
11	19.425	19.918	19.431	0.262	0.08	0.262	19.918	19.431	19.918	0.076	0.261	0.079
12	19.425	19.912	19.431	0.274	0.073	0.273	19.918	19.437	19.912	0.072	0.271	0.074
13	19.493	19.975	19.5	0.271	0.076	0.272	19.975	19.5	19.975	0.075	0.271	0.077
14	19.35	19.85	19.362	0.262	0.077	0.26	19.85	19.362	19.85	0.075	0.261	0.075
15	19.575	20.05	19.581	0.276	0.088	0.275	20.05	19.581	20.05	0.087	0.275	0.087
16	19.437	19.925	19.443	0.267	0.079	0.268	19.925	19.45	19.925	0.077	0.267	0.078
17	19.437	19.931	19.437	0.266	0.084	0.265	19.931	19.437	19.931	0.084	0.265	0.084
18	19.437	19.931	19.437	0.266	0.084	0.265	19.931	19.437	19.931	0.084	0.265	0.084
19	19.468	19.975	19.462	0.269	0.078	0.266	19.981	19.443	19.975	0.077	0.265	0.081
20	19.462	19.981	19.456	0.267	0.082	0.267	19.981	19.456	19.981	0.081	0.265	0.082
21	19.356	19.868	19.368	0.259	0.074	0.259	19.868	19.368	19.868	0.073	0.26	0.075
22	19.493	19.987	19.5	0.268	0.08	0.268	19.987	19.5	19.987	0.076	0.266	0.078
23	19.493	19.981	19.493	0.266	0.084	0.267	19.981	19.5	19.981	0.081	0.265	0.081
24	19.418	19.9	19.425	0.256	0.078	0.256	19.9	19.425	19.9	0.074	0.256	0.074
25	19.468	19.943	19.462	0.265	0.086	0.264	19.943	19.468	19.937	0.084	0.263	0.084
26	19.418	19.881	19.425	0.265	0.081	0.263	19.881	19.431	19.881	0.08	0.265	0.081
27	19.456	19.937	19.456	0.269	0.084	0.268	19.937	19.456	19.937	0.083	0.269	0.085
28	19.456	19.925	19.462	0.272	0.08	0.271	19.918	19.462	19.918	0.08	0.27	0.082
29	19.481	19.95	19.487	0.263	0.08	0.262	19.95	19.487	19.95	0.079	0.262	0.079
30	19.587	20.056	19.593	0.267	0.079	0.264	20.056	19.593	20.056	0.075	0.265	0.076
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.587	20.056	19.593	0.276	0.089	0.275	20.056	19.593	20.056	0.088	0.275	0.089
MIN	19.350	19.850	19.362	0.255	0.070	0.255	19.850	19.362	19.850	0.068	0.256	0.068
AVER	19.464	19.946	19.468	0.266	0.080	0.265	19.946	19.469	19.946	0.078	0.265	0.080
S	0.058	0.053	0.057	0.005	0.005	0.005	0.053	0.058	0.053	0.005	0.005	0.005
Ca	0.337	0.231	0.332				0.231	0.330	0.230			
Cp	4.904	5.348	4.950	15.541	30.676	15.287	5.343	4.898	5.332	28.372	16.901	29.105
CPK	3.251	4.112	3.308	15.541	30.676	15.287	4.109	3.280	4.104	28.372	16.901	29.105
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Dynamic		Dynamic		Dynamic		Dynamic		load regulation						INPUT/OUTPUT		
Vin/Fin	90V/60Hz		100V/60Hz		240V/50Hz		264V/50Hz		264V/50Hz						264V/50Hz		
Load	0~4.5A		4.5~0A		0~4.5A		4.5~0A		4.51A		5A		5.5A		4.51A		
Item Content	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vpp-1	Vdc-2	Vpp-2	Vdc-3	Vpp-3	Irms	EFF	PFC
NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
1	19.968	19.462	19.481	19.956	19.975	19.443	19.425	19.962	19.487	0.222	19.431	0.249	19.387	0.268	0.401	86.531	0.958
2	19.893	19.431	19.400	19.887	19.887	19.337	19.343	19.881	19.393	0.233	19.331	0.257	19.287	0.279	0.401	86.049	0.958
3	20.025	19.531	19.556	20.012	20.012	19.556	19.562	20.006	19.525	0.228	19.468	0.249	19.418	0.273	0.403	86.329	0.957
4	19.931	19.456	19.450	19.931	19.931	19.481	19.487	19.931	19.450	0.234	19.400	0.255	19.356	0.279	0.401	86.355	0.958
5	20.075	19.625	19.518	20.068	20.062	19.537	19.612	20.062	19.581	0.230	19.531	0.254	19.481	0.276	0.403	86.377	0.960
6	19.975	19.468	19.562	19.981	19.993	19.462	19.462	19.981	19.518	0.231	19.462	0.253	19.412	0.275	0.403	86.275	0.958
7	19.906	19.362	19.431	19.906	19.906	19.431	19.431	19.900	19.431	0.234	19.375	0.258	19.325	0.283	0.400	86.551	0.957
8	19.981	19.512	19.556	19.981	19.993	19.487	19.537	19.981	19.525	0.220	19.462	0.243	19.412	0.265	0.402	86.370	0.959
9	20.037	19.593	19.543	20.037	20.031	19.587	19.543	20.031	19.550	0.228	19.487	0.249	19.437	0.270	0.404	86.241	0.957
10	20	19.531	19.550	20.000	20.000	19.550	19.462	19.993	19.506	0.231	19.450	0.255	19.406	0.278	0.401	86.509	0.960
11	19.95	19.4	19.456	19.937	19.931	19.418	19.450	19.937	19.437	0.229	19.387	0.250	19.337	0.276	0.402	86.038	0.959
12	19.943	19.406	19.400	19.937	19.937	19.475	19.406	19.931	19.443	0.237	19.393	0.261	19.343	0.282	0.402	86.329	0.956
13	19.987	19.443	19.500	19.987	19.993	19.456	19.543	19.993	19.506	0.236	19.456	0.258	19.412	0.282	0.402	86.471	0.957
14	19.868	19.381	19.393	19.862	19.862	19.400	19.318	19.875	19.368	0.227	19.318	0.248	19.268	0.271	0.401	86.202	0.956
15	20.075	19.518	19.543	20.062	20.075	19.537	19.625	20.068	19.587	0.239	19.531	0.261	19.481	0.288	0.404	86.501	0.956
16	19.95	19.387	19.418	19.937	19.950	19.468	19.487	19.950	19.462	0.232	19.406	0.254	19.356	0.279	0.401	86.413	0.958
17	19.95	19.368	19.431	19.950	19.962	19.431	19.381	19.956	19.443	0.231	19.400	0.254	19.356	0.278	0.402	86.280	0.957
18	19.95	19.368	19.431	19.950	19.962	19.431	19.381	19.956	19.443	0.231	19.400	0.254	19.356	0.278	0.402	86.280	0.957
19	19.993	19.393	19.412	20.012	20.006	19.493	19.462	20.000	19.487	0.235	19.456	0.260	19.418	0.282	0.403	86.303	0.957
20	20.006	19.4	19.512	20.000	20.012	19.493	19.487	20.012	19.462	0.231	19.437	0.264	19.400	0.278	0.402	86.537	0.956
21	19.887	19.312	19.400	19.881	19.887	19.418	19.343	19.887	19.375	0.224	19.312	0.248	19.262	0.271	0.400	86.221	0.958
22	20.031	19.493	19.550	20.006	20.018	19.468	19.487	20.012	19.512	0.232	19.450	0.253	19.406	0.281	0.403	86.244	0.958
23	20.006	19.443	19.562	19.993	20.000	19.462	19.468	20.000	19.500	0.230	19.443	0.254	19.393	0.277	0.402	86.405	0.958
24	19.918	19.4	19.468	19.925	19.925	19.450	19.450	19.925	19.431	0.223	19.368	0.245	19.325	0.267	0.401	86.318	0.958
25	19.962	19.4	19.456	19.956	19.962	19.500	19.425	19.968	19.475	0.230	19.425	0.252	19.375	0.274	0.402	86.333	0.957
26	19.906	19.368	19.450	19.906	19.918	19.431	19.450	19.912	19.443	0.231	19.381	0.254	19.331	0.277	0.400	86.502	0.959
27	19.968	19.443	19.500	19.962	19.962	19.487	19.437	19.956	19.468	0.234	19.418	0.255	19.375	0.281	0.400	86.707	0.957
28	19.937	19.425	19.512	19.943	19.950	19.487	19.418	19.943	19.475	0.236	19.412	0.264	19.368	0.284	0.399	86.841	0.959
29	19.968	19.425	19.425	19.968	19.975	19.518	19.537	19.975	19.493	0.227	19.443	0.250	19.393	0.275	0.402	86.418	0.957
30	20.068	19.575	19.637	20.068	20.081	19.550	19.637	20.075	19.593	0.227	19.543	0.251	19.500	0.274	0.404	86.303	0.958
UNIT	V	V	V	V	V	V	V	V	V	V	V	V	V	V	A	%	
UCL	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	0.50	20.6	0.50	20.6	0.50	0.7		
LCL	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9		18.9		18.9			83	0.9
MAX	20.075	19.625	19.637	20.068	20.081	19.587	19.637	20.075	19.593	0.239	19.543	0.264	19.500	0.288	0.404	86.841	0.960
MIN	19.868	19.312	19.393	19.862	19.862	19.337	19.318	19.875	19.368	0.220	19.312	0.243	19.262	0.265	0.399	86.038	0.956
AVER	19.970	19.444	19.483	19.967	19.972	19.475	19.469	19.969	19.479	0.230	19.426	0.254	19.379	0.277	0.402	86.374	0.958
S	0.055	0.075	0.064	0.053	0.054	0.053	0.080	0.053	0.057	0.004	0.057	0.005	0.057	0.005	0.001	0.169	0.001
Ca	0.259	0.360	0.314	0.255	0.261	0.324	0.331	0.257	0.319		0.381		0.436				
Cp	5.189	3.789	4.407	5.297	5.220	5.296	3.525	5.369	5.008	20.138	4.964	15.912	4.940	14.029	77.785	6.653	17.581
CPK	3.843	2.425	3.025	3.946	3.857	3.582	2.358	3.988	3.411	20.138	3.071	15.912	2.785	14.029	77.785	6.653	17.581
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	REF

Item	INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			HOLD-UP	POWER LOSS
Vin/Fin	230V/50Hz			180V/50Hz			137V/50Hz			115V/60Hz			90V/60Hz			90V/60Hz	240V/50Hz
Load	4.51A			4.51A			4.51A			4.51A			4.51A			4.51A	0A
Item Content	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Hold-up time	Pin
NO.	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74*
1	0.452	86.363	0.978	0.612	86.562	0.921	0.755	87.585	0.969	0.882	87.027	0.996	1.155	85.505	0.991	27.355	0.684
2	0.451	86.185	0.978	0.569	85.750	0.995	0.759	87.311	0.963	0.879	86.730	0.998	1.148	85.274	0.995	27.814	0.672
3	0.454	86.170	0.978	0.615	85.607	0.928	0.763	87.441	0.963	0.887	86.847	0.994	1.168	85.115	0.987	27.441	0.69
4	0.451	86.261	0.979	0.601	86.223	0.939	0.760	87.458	0.963	0.881	86.889	0.997	1.154	85.318	0.992	27.915	0.666
5	0.454	86.207	0.980	0.600	86.142	0.948	0.761	87.501	0.968	0.889	86.855	0.995	1.171	85.192	0.986	28.296	0.672
6	0.454	86.143	0.977	0.605	85.974	0.939	0.763	87.344	0.963	0.886	86.724	0.996	1.164	85.045	0.990	27.137	0.678
7	0.450	86.377	0.979	0.604	86.551	0.930	0.753	87.689	0.968	0.879	87.074	0.996	1.155	85.415	0.988	27.382	0.708
8	0.453	86.237	0.978	0.601	86.171	0.943	0.762	87.406	0.963	0.885	86.831	0.996	1.160	85.212	0.992	27.195	0.708
9	0.455	86.110	0.977	0.596	86.082	0.954	0.762	87.440	0.965	0.886	86.839	0.997	1.160	85.284	0.992	27.173	0.72
10	0.452	86.338	0.979	0.606	86.471	0.931	0.759	87.710	0.965	0.882	87.112	0.997	1.156	85.537	0.991	28.352	0.672
11	0.453	85.944	0.978	0.610	85.998	0.928	0.761	87.224	0.964	0.884	86.658	0.995	1.156	85.104	0.989	27.672	0.672
12	0.452	86.196	0.978	0.577	86.103	0.980	0.762	87.345	0.961	0.882	86.797	0.996	1.155	85.292	0.992	27.104	0.732
13	0.453	86.310	0.977	0.575	86.039	0.988	0.762	87.534	0.962	0.884	87.004	0.995	1.158	85.381	0.991	26.565	0.678
14	0.451	86.127	0.977	0.625	86.582	0.897	0.755	87.272	0.968	0.880	86.703	0.996	1.152	85.144	0.993	26.846	0.666
15	0.454	86.303	0.979	0.608	86.237	0.935	0.763	87.415	0.966	0.889	86.817	0.995	1.169	85.218	0.987	27.442	0.666
16	0.452	86.280	0.977	0.611	86.346	0.924	0.762	87.336	0.962	0.884	86.743	0.995	1.160	85.111	0.990	27.325	0.666
17	0.452	86.148	0.979	0.572	85.865	0.991	0.765	87.256	0.959	0.882	86.716	0.998	1.155	85.174	0.994	27.531	0.672
18	0.452	86.148	0.979	0.572	85.865	0.991	0.765	87.256	0.959	0.882	86.716	0.998	1.155	85.174	0.994	27.531	0.666
19	0.454	86.020	0.978	0.573	85.745	0.994	0.760	87.329	0.967	0.886	86.613	0.997	1.163	85.065	0.989	27.752	0.654
20	0.452	86.312	0.980	0.604	86.312	0.936	0.760	87.530	0.964	0.884	86.934	0.995	1.162	85.323	0.987	26.635	0.672
21	0.450	86.089	0.979	0.603	86.202	0.933	0.760	87.272	0.961	0.881	86.677	0.995	1.158	85.021	0.988	28.072	0.666
22	0.454	86.197	0.977	0.601	86.131	0.944	0.762	87.348	0.965	0.886	86.706	0.996	1.162	85.123	0.991	27.278	0.714
23	0.453	86.244	0.979	0.606	86.271	0.934	0.765	87.371	0.960	0.884	86.759	0.998	1.157	85.233	0.993	26.401	0.672
24	0.451	86.170	0.980	0.611	86.415	0.921	0.759	87.443	0.964	0.883	86.846	0.994	1.161	85.208	0.987	26.961	0.702
25	0.452	86.333	0.978	0.622	86.666	0.905	0.756	87.476	0.969	0.885	86.800	0.994	1.164	85.219	0.986	27.639	0.678
26	0.451	86.349	0.977	0.637	87.010	0.878	0.759	87.524	0.962	0.882	86.900	0.995	1.158	85.312	0.988	28.004	0.696
27	0.451	86.599	0.977	0.577	86.240	0.979	0.759	87.750	0.962	0.882	87.123	0.994	1.161	85.460	0.985	26.923	0.678
28	0.450	86.688	0.977	0.572	86.447	0.986	0.757	87.814	0.963	0.879	87.267	0.996	1.151	85.657	0.991	27.858	0.684
29	0.452	86.390	0.978	0.612	86.351	0.923	0.762	87.399	0.963	0.886	86.805	0.994	1.166	85.147	0.986	27.481	0.648
30	0.455	86.198	0.979	0.615	86.303	0.925	0.763	87.357	0.967	0.892	86.669	0.994	1.171	85.043	0.988	27.424	0.666
UNIT	A	%		A	%		A	%		A	%		A	%		mS	W
UCL	0.7			1.5			1.5			1.5			1.5				1.0
LCL		83	0.9		83	0.8		83	0.9		83	0.9		83	0.9	10	
MAX	0.455	86.688	0.980	0.637	87.010	0.995	0.765	87.814	0.969	0.892	87.267	0.998	1.171	85.657	0.995	28.352	0.732
MIN	0.450	85.944	0.977	0.569	85.607	0.878	0.753	87.224	0.959	0.879	86.613	0.994	1.148	85.021	0.985	26.401	0.648
AVER	0.452	86.248	0.978	0.600	86.222	0.944	0.760	87.438	0.964	0.884	86.839	0.996	1.160	85.244	0.990	27.417	0.681
S	0.001	0.151	0.001	0.018	0.302	0.031	0.003	0.152	0.003	0.003	0.158	0.001	0.006	0.156	0.003	0.482	0.020
Ca																	
Cp	57.078	7.151	26.157	16.578	3.552	1.559	81.785	9.707	7.569	65.946	8.106	24.335	19.630	4.792	10.830	12.039	5.364
CPK	57.078	7.151	26.157	16.578	3.552	1.559	81.785	9.707	7.569	65.946	8.106	24.335	19.630	4.792	10.830	12.039	5.364
RESULT	OK	OK	OK	OK	OK	REF	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

COMMENT : ITEM74* DATAS TEST WITH WT-110 (TEST TIME 1 MINUTE)



lite-On Electronics (DG) Co. Ltd.

光寶電子(東莞)有限公司

CPK REPORT (mixing source-3)

CUSTOMER : DELL

PROJECT NAME : COMANECI

DELL P/N : 6G356

MODEL PA-1900-05D

PREPARED BY: 陈金东 1/18/02 CHECKED BY: 王东 1/26/02 APPROVED BY: ^{for} Peter 1/26/02

Item	Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on	
Vin/Fin	90V/47Hz		90V/60Hz		115V/60Hz		132V/63Hz		180V/47Hz		240V/50Hz		240V/50Hz		264V/63Hz	
Load	4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A	
Item Content	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush
NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	580.168	29.335	15.079	9.257	368.251	41.835	364.19	14.914	363.733	36.367	358.318	43.148	11.11	42.117	357.533	45.335
2	571.865	27.242	13.43	9.195	362.138	43.273	359.687	14.664	359.43	41.117	355.707	42.492	10.969	43.148	353.048	42.554
3	580.597	27.085	14.653	9.132	400.714	39.929	401.591	14.726	397.048	39.992	364.637	42.992	10.807	43.023	363.684	42.367
4	577.345	27.617	11.657	8.976	363.31	39.804	361.722	14.539	361.4	39.398	357.862	43.148	11.21	43.242	355.425	41.148
5	568.664	28.96	12.97	8.914	364.295	41.335	359.715	14.351	359.003	35.179	353.754	42.492	10.315	42.929	352.259	43.929
6	568.135	28.867	14.768	9.226	357.651	41.117	356.022	14.851	355.693	36.398	350.488	42.898	10.688	44.335	349.623	41.992
7	578.904	27.492	16.475	8.882	392.806	39.679	382.819	14.195	379.559	36.929	360.111	42.867	10.069	43.898	359.212	42.492
8	590.339	28.835	13.096	8.789	390.793	39.648	393.262	14.164	391.209	35.054	386.703	43.179	11.807	43.929	379.558	42.617
9	576.846	29.023	11.06	9.101	397.539	41.054	381.389	14.757	377.588	38.617	361.486	43.335	10.11	41.992	360.507	42.148
10	568.777	29.21	13.455	9.101	363.099	39.585	358.444	14.539	357.637	39.335	352.825	42.585	10.211	42.367	351.573	39.929
11	588.353	27.054	12.636	8.632	372.651	41.304	371.832	14.07	371.406	35.773	367.493	43.335	10.778	42.992	365.388	41.117
12	582.078	28.648	13.601	9.07	375.736	41.992	371.748	14.695	371.482	39.929	366.113	42.804	10.182	42.554	365.204	40.273
13	578.325	27.117	16.289	9.132	363.108	42.335	361.831	14.664	361.604	39.429	356.849	41.742	10.786	41.71	356.072	44.054
14	580.774	28.679	16.08	8.914	378.936	39.617	369.271	14.195	368.494	39.21	363.675	42.617	10.107	42.429	361.313	40.492
15	568.759	29.96	11.5	8.945	363.395	40.804	359.262	14.57	358.787	38.242	353.616	42.429	10.21	44.71	352.564	43.304
16	579.156	29.742	14.824	9.007	398.288	42.679	390.582	14.57	386.298	39.398	359.372	42.085	10.288	42.523	358.735	41.835
17	579.351	29.304	12.335	8.82	375.966	40.46	367.665	14.32	367.23	37.054	361.435	42.617	10.028	44.117	360.109	42.929
18	572.104	29.179	10.828	9.007	367.192	39.929	364.991	14.601	364.807	38.992	360.459	42.273	10.751	43.398	358.654	43.554
19	569.698	28.992	11.257	8.789	368.348	40.742	363.677	14.257	363.196	35.648	358.38	42.492	9.142	44.179	357.024	43.023
20	587.716	29.648	13.778	8.945	375.844	42.398	371.723	14.414	371.074	36.023	365.236	43.523	10.031	41.304	363.814	44.648
21	565.739	28.023	13.008	8.789	359.719	39.273	355.091	14.226	354.883	38.773	351.611	42.929	11.413	43.054	349.618	42.617
22	570.718	27.804	14.031	8.914	360.806	41.21	359.948	14.32	359.624	35.929	355.911	43.335	10.823	41.679	353.911	46.367
23	569.521	26.929	11.172	8.539	363.15	39.867	361.673	13.914	361.594	38.242	357.062	42.742	10.759	42.71	355.958	42.929
24	560.346	28.117	11.607	9.039	354.785	42.929	353.864	14.695	353.533	39.117	349.403	42.523	11.027	42.773	348.171	41.554
25	580.988	27.398	11.803	8.851	396.873	42.773	370.476	14.226	369.905	35.992	365.561	41.867	9.721	42.273	363.672	42.617
26	378.381	21.804	10.842	8.164	370.147	40.585	367.553	14.32	367.329	35.023	362.368	42.398	10.519	42.929	361.768	41.367
27	582.699	28.367	12.288	8.695	400.329	39.898	388.36	14.07	383.862	35.742	363.926	43.054	10.021	43.773	362.894	44.398
28	576.738	24.835	11.165	9.007	377.069	42.648	368.951	14.664	368.532	39.398	362.11	43.117	9.021	42.117	360.156	45.773
29	569.698	28.992	11.257	8.789	368.348	40.742	363.677	14.257	363.196	35.648	358.38	42.492	10.031	44.179	357.024	43.023
30	569.521	26.929	11.172	8.539	363.15	39.867	361.673	13.914	361.594	38.242	357.062	42.742	9.351	42.71	355.958	42.929
UNIT	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A
UCL	4000	50	30	50	4000	50	4000	50	4000	100	4000	100	30	100	4000	100
LCL																
MAX	590.339	29.960	16.475	9.257	400.714	43.273	401.591	14.914	397.048	41.117	386.703	43.523	11.807	44.710	379.558	46.367
MIN	378.381	21.804	10.828	8.164	354.785	39.273	353.864	13.914	353.533	35.023	349.403	41.742	9.021	41.304	348.171	39.929
AVER	569.076	28.040	12.937	8.905	373.815	40.977	368.756	14.422	367.691	37.673	359.930	42.742	10.410	42.970	358.348	42.777
S	36.724	1.628	1.722	0.233	14.217	1.201	12.067	0.273	10.861	1.809	6.972	0.438	0.640	0.871	6.258	1.546
Ca																
Cp	31.142	4.496	3.303	58.762	85.019	2.504	100.306	43.455	111.482	11.487	174.041	43.620	10.201	21.832	193.971	12.336
CPK	31.142	4.496	3.303	58.762	85.019	2.504	100.306	43.455	111.482	11.487	174.041	43.620	10.201	21.832	193.971	12.336
RESULT	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF

Item	Combine						Combine					
Vin/Fin	264V/63Hz	240V/50Hz	180V/47Hz	264V/63Hz	240V/50Hz	180V/47Hz	180V/47Hz	240V/60Hz	265V/63Hz	180V/47Hz	240V/60Hz	265V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	17	18	19	20	21	22	23	24	25	26	27	28
1	19.481	19.962	19.493	0.23	0.098	0.229	19.962	19.5	19.962	0.099	0.231	0.099
2	19.487	19.962	19.487	0.233	0.093	0.236	19.962	19.5	19.962	0.092	0.233	0.094
3	19.468	19.991	19.468	0.231	0.093	0.229	19.931	19.475	19.931	0.093	0.228	0.093
4	19.4	19.868	19.4	0.226	0.096	0.233	19.868	19.412	19.862	0.096	0.228	0.097
5	19.5	19.943	19.506	0.23	0.097	0.228	19.943	19.506	19.943	0.098	0.231	0.098
6	19.487	20.018	19.5	0.228	0.1	0.229	20.012	19.506	20.018	0.1	0.228	0.101
7	19.475	19.962	19.481	0.227	0.092	0.227	19.962	19.487	19.962	0.092	0.227	0.092
8	19.475	19.968	19.481	0.224	0.096	0.222	19.968	19.481	19.968	0.097	0.223	0.097
9	19.487	19.962	19.493	0.229	0.1	0.227	19.962	19.5	19.962	0.1	0.229	0.101
10	19.437	19.912	19.443	0.225	0.095	0.225	19.912	19.45	19.912	0.096	0.225	0.096
11	19.381	19.868	19.387	0.227	0.093	0.229	19.868	19.393	19.868	0.093	0.227	0.094
12	19.55	20.037	19.556	0.23	0.099	0.23	20.031	19.556	20.031	0.099	0.23	0.099
13	19.475	19.968	19.475	0.225	0.095	0.226	19.968	19.475	19.968	0.096	0.227	0.096
14	19.412	19.9	19.412	0.227	0.095	0.232	19.9	19.418	19.9	0.093	0.227	0.095
15	19.306	19.793	19.312	0.227	0.095	0.229	19.793	19.318	19.793	0.095	0.227	0.096
16	19.487	19.981	19.493	0.233	0.097	0.232	19.981	19.493	19.981	0.098	0.233	0.098
17	19.443	19.943	19.45	0.225	0.097	0.224	19.943	19.456	19.937	0.097	0.225	0.097
18	19.468	19.931	19.475	0.234	0.102	0.235	19.931	19.481	19.931	0.102	0.234	0.103
19	19.468	19.956	19.475	0.235	0.099	0.236	19.956	19.481	19.956	0.099	0.237	0.099
20	19.468	19.943	19.468	0.238	0.106	0.24	19.937	19.475	19.943	0.106	0.237	0.107
21	19.35	19.837	19.35	0.225	0.093	0.232	19.843	19.356	19.843	0.092	0.225	0.094
22	19.375	19.862	19.375	0.23	0.095	0.235	19.862	19.381	19.862	0.093	0.23	0.095
23	19.606	20.106	19.606	0.221	0.094	0.227	20.1	19.618	20.106	0.094	0.224	0.095
24	19.368	19.862	19.375	0.236	0.1	0.235	19.862	19.381	19.862	0.1	0.236	0.1
25	19.362	19.856	19.368	0.227	0.095	0.226	19.856	19.375	19.856	0.094	0.225	0.096
26	19.475	19.968	19.481	0.227	0.094	0.226	19.968	19.481	19.968	0.094	0.226	0.094
27	19.393	19.887	19.412	0.228	0.093	0.226	19.893	19.412	19.887	0.093	0.228	0.093
28	19.418	19.918	19.425	0.229	0.091	0.233	19.918	19.431	19.918	0.09	0.233	0.091
29	19.468	19.956	19.475	0.235	0.099	0.236	19.956	19.481	19.956	0.099	0.237	0.099
30	19.606	20.106	19.606	0.221	0.094	0.227	20.1	19.618	20.106	0.094	0.224	0.095
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.606	20.106	19.606	0.238	0.106	0.240	20.100	19.618	20.106	0.106	0.237	0.107
MIN	19.306	19.793	19.312	0.221	0.091	0.222	19.793	19.318	19.793	0.090	0.223	0.091
AVER	19.453	19.939	19.458	0.229	0.096	0.230	19.938	19.463	19.938	0.096	0.229	0.097
S	0.068	0.071	0.068	0.004	0.003	0.004	0.069	0.068	0.070	0.004	0.004	0.003
Ca	0.350	0.222	0.344				0.221	0.337	0.222			
Cp	4.144	4.011	4.171	21.405	40.469	20.721	4.123	4.152	4.031	37.414	21.609	39.091
CPK	2.694	3.120	2.736	21.405	40.469	20.721	3.210	2.751	3.137	37.414	21.609	39.091
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Combine						Combine					
Vin/Fin	132V/63Hz	115V/60Hz	90V/47Hz	132V/63Hz	115V/60Hz	90V/47Hz	90V/47Hz	115V/60Hz	137V/63Hz	90V/47Hz	115V/60Hz	137V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	29	30	31	32	33	34	35	36	37	38	39	40
1	19.487	19.962	19.487	0.268	0.081	0.267	19.962	19.493	19.962	0.082	0.268	0.082
2	19.493	19.962	19.5	0.27	0.075	0.27	19.962	19.5	19.962	0.073	0.269	0.074
3	19.468	19.931	19.468	0.266	0.08	0.267	19.931	19.475	19.931	0.075	0.266	0.078
4	19.406	19.862	19.406	0.264	0.078	0.263	19.862	19.412	19.868	0.076	0.262	0.077
5	19.493	19.943	19.5	0.265	0.078	0.266	19.943	19.5	19.943	0.077	0.265	0.08
6	19.5	20.012	19.5	0.265	0.084	0.264	20.012	19.506	20.012	0.084	0.266	0.085
7	19.475	19.962	19.481	0.263	0.074	0.264	19.962	19.487	19.962	0.074	0.267	0.076
8	19.475	19.968	19.481	0.261	0.082	0.26	19.968	19.487	19.962	0.081	0.259	0.082
9	19.487	19.962	19.493	0.265	0.086	0.265	19.962	19.5	19.962	0.084	0.267	0.086
10	19.437	19.912	19.45	0.261	0.079	0.259	19.912	19.45	19.912	0.077	0.259	0.081
11	19.387	19.868	19.393	0.263	0.079	0.266	19.868	19.393	19.868	0.076	0.262	0.076
12	19.55	20.037	19.556	0.272	0.082	0.267	20.031	19.562	20.037	0.081	0.267	0.084
13	19.462	19.968	19.468	0.263	0.077	0.261	19.968	19.475	19.968	0.076	0.261	0.077
14	19.412	19.893	19.412	0.262	0.077	0.262	19.9	19.418	19.9	0.075	0.266	0.076
15	19.306	19.793	19.312	0.262	0.077	0.267	19.793	19.318	19.793	0.076	0.262	0.077
16	19.487	19.981	19.493	0.272	0.08	0.271	19.981	19.493	19.981	0.079	0.272	0.081
17	19.45	19.943	19.456	0.26	0.082	0.26	19.937	19.456	19.937	0.079	0.261	0.082
18	19.468	19.931	19.468	0.271	0.087	0.272	19.931	19.475	19.937	0.086	0.271	0.086
19	19.468	19.956	19.475	0.273	0.083	0.271	19.956	19.481	19.956	0.082	0.273	0.084
20	19.462	19.937	19.468	0.276	0.092	0.277	19.943	19.468	19.937	0.09	0.276	0.093
21	19.356	19.843	19.356	0.262	0.076	0.26	19.843	19.356	19.837	0.074	0.26	0.076
22	19.368	19.862	19.381	0.263	0.081	0.266	19.862	19.381	19.862	0.077	0.262	0.077
23	19.612	20.106	19.618	0.262	0.08	0.259	20.1	19.618	20.106	0.079	0.258	0.08
24	19.368	19.862	19.375	0.273	0.08	0.273	19.862	19.381	19.862	0.079	0.274	0.081
25	19.362	19.856	19.368	0.263	0.081	0.265	19.856	19.375	19.856	0.078	0.263	0.079
26	19.475	19.968	19.481	0.263	0.079	0.263	19.968	19.487	19.968	0.074	0.262	0.077
27	19.393	19.893	19.4	0.268	0.077	0.265	19.893	19.4	19.893	0.074	0.264	0.075
28	19.418	19.918	19.425	0.269	0.077	0.267	19.918	19.425	19.918	0.075	0.266	0.077
29	19.468	19.956	19.475	0.273	0.083	0.271	19.956	19.481	19.956	0.082	0.273	0.084
30	19.612	20.106	19.618	0.262	0.08	0.259	20.1	19.618	20.106	0.079	0.258	0.08
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.612	20.106	19.618	0.276	0.092	0.277	20.100	19.618	20.106	0.090	0.276	0.093
MIN	19.306	19.793	19.312	0.260	0.074	0.259	19.793	19.318	19.793	0.073	0.258	0.074
AVER	19.454	19.938	19.459	0.266	0.080	0.266	19.938	19.462	19.938	0.078	0.265	0.080
S	0.069	0.070	0.069	0.005	0.004	0.005	0.069	0.069	0.070	0.004	0.005	0.004
Ca	0.349	0.222	0.343				0.221	0.338	0.222			
Cp	4.101	4.028	4.105	17.091	37.242	16.882	4.110	4.118	4.037	34.557	15.590	33.288
CPK	2.670	3.135	2.699	17.091	37.242	16.882	3.201	2.725	3.142	34.557	15.590	33.288
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Dynamic		Dynamic		Dynamic		Dynamic		load regulation						INPUT/OUTPUT		
Vin/Fin	90V/60Hz		100V/60Hz		240V/50Hz		264V/50Hz		264V/50Hz						264V/50Hz		
Load	0~4.5A		4.5~0A		0~4.5A		4.5~0A		4.51A		5A		5.5A		4.51A		
Item Content	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vpp-1	Vdc-2	Vpp-2	Vdc-3	Vpp-3	Irms	EFF	PFC
NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
1	19.987	19.481	19.531	19.987	19.987	19.431	19.475	19.987	19.493	0.229	19.443	0.252	19.393	0.277	0.402	86.484	0.957
2	19.981	19.443	19.543	19.981	19.987	19.450	19.450	19.987	19.512	0.232	19.450	0.256	19.406	0.280	0.402	86.377	0.959
3	19.981	19.456	19.512	19.956	19.956	19.506	19.487	19.956	19.481	0.229	19.418	0.252	19.375	0.275	0.402	86.439	0.956
4	19.893	19.437	19.368	19.887	19.887	19.456	19.450	19.893	19.418	0.226	19.362	0.250	19.312	0.274	0.400	86.427	0.957
5	19.968	19.506	19.431	19.962	19.975	19.525	19.506	19.968	19.512	0.229	19.456	0.252	19.406	0.278	0.402	86.604	0.956
6	20.043	19.487	19.562	20.037	20.037	19.512	19.543	20.031	19.512	0.227	19.462	0.251	19.418	0.274	0.402	86.270	0.960
7	19.993	19.437	19.531	19.993	19.993	19.537	19.512	19.993	19.500	0.226	19.437	0.249	19.381	0.273	0.403	86.173	0.957
8	19.987	19.431	19.456	19.987	19.987	19.443	19.450	19.993	19.493	0.223	19.431	0.247	19.387	0.268	0.402	86.551	0.956
9	19.993	19.45	19.556	19.987	20.000	19.531	19.462	19.993	19.506	0.229	19.443	0.251	19.393	0.275	0.402	86.492	0.957
10	19.937	19.506	19.406	19.931	19.937	19.481	19.418	19.937	19.456	0.224	19.400	0.246	19.350	0.269	0.401	86.555	0.956
11	19.887	19.406	19.443	19.887	19.893	19.443	19.443	19.893	19.400	0.226	19.337	0.249	19.293	0.273	0.400	86.574	0.955
12	20.062	19.512	19.575	20.050	20.056	19.531	19.525	20.062	19.568	0.229	19.506	0.252	19.456	0.278	0.404	86.294	0.957
13	19.993	19.412	19.500	20.000	20.000	19.425	19.462	19.993	19.481	0.224	19.425	0.248	19.381	0.271	0.403	86.192	0.957
14	19.918	19.356	19.475	19.925	19.931	19.368	19.375	19.925	19.425	0.227	19.362	0.251	19.318	0.272	0.401	86.284	0.958
15	19.818	19.256	19.256	19.812	19.825	19.275	19.375	19.818	19.325	0.227	19.262	0.250	19.212	0.277	0.399	86.439	0.955
16	20.006	19.443	19.525	20.000	20.006	19.537	19.450	20.006	19.500	0.233	19.450	0.257	19.393	0.280	0.403	86.293	0.956
17	19.968	19.493	19.443	19.962	19.968	19.462	19.506	19.968	19.462	0.224	19.400	0.246	19.356	0.272	0.401	86.495	0.957
18	19.962	19.406	19.456	19.968	19.968	19.450	19.437	19.962	19.487	0.233	19.431	0.258	19.381	0.281	0.402	86.492	0.956
19	19.975	19.525	19.525	19.987	19.981	19.525	19.531	19.987	19.487	0.235	19.425	0.259	19.375	0.282	0.401	86.532	0.957
20	19.962	19.475	19.431	19.962	19.975	19.525	19.425	19.968	19.481	0.237	19.425	0.262	19.375	0.287	0.402	86.248	0.958
21	19.868	19.3	19.381	19.862	19.868	19.400	19.312	19.862	19.362	0.224	19.312	0.247	19.256	0.270	0.399	86.451	0.957
22	19.9	19.393	19.318	19.893	19.893	19.350	19.418	19.893	19.393	0.227	19.337	0.250	19.293	0.275	0.401	86.200	0.958
23	20.125	19.675	19.612	20.125	20.125	19.587	19.668	20.125	19.618	0.221	19.568	0.243	19.518	0.266	0.404	86.638	0.956
24	19.9	19.331	19.425	19.881	19.887	19.418	19.431	19.881	19.381	0.236	19.331	0.259	19.281	0.285	0.400	86.497	0.955
25	19.881	19.406	19.343	19.875	19.881	19.393	19.393	19.881	19.375	0.226	19.325	0.248	19.275	0.270	0.399	86.604	0.956
26	19.987	19.487	19.481	19.981	19.993	19.512	19.531	19.993	19.493	0.225	19.437	0.249	19.381	0.272	0.402	86.524	0.956
27	19.925	19.4	19.425	19.918	19.925	19.400	19.356	19.925	19.412	0.227	19.368	0.252	19.318	0.276	0.401	86.310	0.957
28	19.943	19.368	19.456	19.956	19.956	19.381	19.381	19.956	19.431	0.230	19.375	0.253	19.331	0.277	0.410	84.242	0.960
29	19.975	19.525	19.525	19.987	19.981	19.525	19.531	19.987	19.487	0.235	19.425	0.259	19.375	0.282	0.401	86.532	0.957
30	20.125	19.675	19.612	20.125	20.125	19.587	19.668	20.125	19.618	0.221	19.568	0.243	19.518	0.266	0.404	86.638	0.956
UNIT	V	V	V	V	V	V	V	V	V	V	V	V	V	V	A	%	
UCL	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	0.50	20.6	0.50	20.6	0.50	0.7		
LCL	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9		18.9		18.9			83	0.8
MAX	20.125	19.675	19.612	20.125	20.125	19.587	19.668	20.125	19.618	0.237	19.568	0.262	19.518	0.287	0.410	86.638	0.960
MIN	19.818	19.256	19.256	19.812	19.825	19.275	19.312	19.818	19.325	0.221	19.262	0.243	19.212	0.266	0.399	84.242	0.955
AVER	19.964	19.449	19.470	19.962	19.966	19.466	19.466	19.965	19.469	0.228	19.412	0.251	19.364	0.275	0.402	86.362	0.957
S	0.068	0.090	0.085	0.070	0.068	0.073	0.080	0.069	0.068	0.004	0.068	0.005	0.068	0.005	0.002	0.424	0.001
Ca	0.251	0.354	0.329	0.250	0.254	0.335	0.334	0.253	0.331		0.397		0.455				
Cp	4.142	3.165	3.342	4.060	4.156	3.869	3.553	4.099	4.154	21.107	4.139	17.230	4.153	14.197	48.032	2.645	41.434
CPK	3.100	2.045	2.241	3.047	3.099	2.574	2.365	3.062	2.780	21.107	2.495	17.230	2.265	14.197	48.032	2.645	41.434
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	REF

Item	INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			HOLD-UP	POWER LOSS
Vin/Fin	230V/50Hz			180V/50Hz			137V/50Hz			115V/60Hz			90V/60Hz			90V/60Hz	240V/50Hz
Load	4.51A			4.51A			4.51A			4.51A			4.51A			4.51A	0A
Item Content	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Hold-up time	Pin
NO.	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74*
1	0.452	86.285	0.979	0.572	86.002	0.992	0.759	87.394	0.966	0.886	86.773	0.994	1.170	85.065	0.984	27.095	0.720
2	0.454	86.310	0.975	0.616	86.576	0.916	0.759	87.398	0.967	0.886	86.789	0.996	1.160	85.155	0.992	27.469	0.660
3	0.452	86.240	0.978	0.605	86.107	0.936	0.762	87.422	0.962	0.883	86.839	0.997	1.157	85.201	0.992	27.554	0.678
4	0.450	86.371	0.978	0.633	86.927	0.983	0.758	87.528	0.962	0.879	86.950	0.997	1.153	85.423	0.990	28.357	0.678
5	0.452	86.604	0.976	0.571	86.271	0.991	0.758	87.781	0.964	0.882	87.154	0.995	1.157	85.563	0.990	27.148	0.690
6	0.454	86.158	0.978	0.573	85.895	0.993	0.760	87.348	0.967	0.885	86.756	0.997	1.159	85.180	0.993	27.835	0.672
7	0.453	86.191	0.978	0.573	85.890	0.991	0.763	87.285	0.963	0.880	86.720	0.998	1.155	85.124	0.992	27.246	0.672
8	0.452	86.333	0.978	0.572	86.021	0.992	0.759	87.380	0.967	0.890	86.724	0.991	1.173	84.949	0.982	27.042	0.684
9	0.452	86.378	0.978	0.577	86.179	0.981	0.758	87.562	0.967	0.883	86.947	0.996	1.154	85.388	0.994	28.318	0.678
10	0.450	86.362	0.981	0.597	86.316	0.946	0.760	87.528	0.962	0.882	86.904	0.995	1.158	85.220	0.990	27.589	0.672
11	0.449	86.507	0.978	0.617	86.775	0.907	0.757	87.605	0.962	0.879	87.005	0.995	1.156	85.358	0.987	26.220	0.684
12	0.455	86.240	0.976	0.585	85.931	0.974	0.761	87.331	0.968	0.890	86.732	0.994	1.170	85.040	0.988	27.217	0.678
13	0.453	86.060	0.979	0.573	85.779	0.992	0.759	87.312	0.967	0.885	86.704	0.997	1.159	85.090	0.992	27.145	0.672
14	0.452	86.085	0.977	0.632	86.626	0.988	0.759	87.261	0.964	0.883	86.693	0.995	1.160	85.026	0.989	27.714	0.708
15	0.448	86.372	0.978	0.588	86.239	0.954	0.757	87.513	0.959	0.875	86.907	0.996	1.148	85.309	0.990	28.181	0.684
16	0.454	86.179	0.976	0.572	85.897	0.993	0.765	87.298	0.960	0.884	86.759	0.997	1.158	85.155	0.993	27.597	0.672
17	0.451	86.362	0.978	0.597	86.316	0.945	0.759	87.583	0.963	0.880	86.985	0.997	1.153	85.422	0.992	27.589	0.678
18	0.452	86.391	0.978	0.597	86.306	0.946	0.762	87.539	0.960	0.882	86.950	0.996	1.154	85.374	0.993	27.410	0.690
19	0.452	86.464	0.976	0.587	86.209	0.963	0.759	87.597	0.964	0.882	86.916	0.997	1.157	85.348	0.991	27.593	0.690
20	0.453	86.049	0.979	0.607	86.134	0.933	0.762	87.259	0.963	0.883	86.693	0.998	1.157	85.097	0.993	27.823	0.672
21	0.449	86.385	0.977	0.622	86.855	0.896	0.753	87.571	0.966	0.880	86.869	0.993	1.159	85.197	0.984	28.479	0.666
22	0.451	86.021	0.979	0.622	86.400	0.904	0.758	87.331	0.964	0.881	86.735	0.996	1.156	85.092	0.990	27.322	0.690
23	0.455	86.401	0.977	0.592	86.289	0.961	0.767	87.496	0.962	0.889	86.905	0.996	1.165	85.280	0.992	27.232	0.672
24	0.450	86.363	0.976	0.578	86.115	0.975	0.754	87.491	0.966	0.880	86.865	0.995	1.154	85.229	0.990	26.810	0.672
25	0.449	86.449	0.978	0.570	86.784	0.982	0.755	87.573	0.964	0.876	87.001	0.998	1.148	85.412	0.992	27.491	0.696
26	0.453	86.391	0.975	0.572	86.192	0.989	0.757	87.666	0.966	0.881	87.042	0.997	1.153	85.409	0.994	27.388	0.684
27	0.451	86.151	0.979	0.574	85.802	0.987	0.758	87.256	0.965	0.882	86.654	0.996	1.156	85.099	0.991	26.985	0.690
28	0.462	84.115	0.979	0.632	83.863	0.918	0.780	85.189	0.962	0.905	84.615	0.995	1.188	83.010	0.990	27.331	0.684
29	0.452	86.464	0.976	0.587	86.209	0.963	0.759	87.597	0.964	0.882	86.916	0.997	1.157	85.348	0.991	27.593	0.672
30	0.455	86.401	0.977	0.592	86.289	0.961	0.767	87.496	0.962	0.889	86.905	0.996	1.165	85.280	0.992	27.232	0.684
UNIT	A	%		A	%		A	%		A	%		A	%		mS	W
UCL	0.7			1.5			1.5			1.5			1.5				1.0
LCL		83	0.9		83	0.8		83	0.9		83	0.9		83	0.9	10	
MAX	0.462	86.604	0.981	0.633	86.927	0.993	0.780	87.781	0.968	0.905	87.154	0.998	1.188	85.563	0.994	28.479	0.720
MIN	0.448	84.115	0.975	0.570	83.863	0.896	0.753	85.189	0.959	0.875	84.615	0.991	1.148	83.010	0.982	26.220	0.660
AVER	0.452	86.236	0.978	0.593	86.173	0.962	0.760	87.386	0.964	0.883	86.780	0.996	1.159	85.161	0.990	27.467	0.681
S	0.003	0.426	0.001	0.021	0.534	0.031	0.005	0.437	0.002	0.005	0.427	0.002	0.008	0.432	0.003	0.472	0.012
Ca																	
Cp	31.499	2.533	18.712	14.394	1.980	1.766	49.861	3.347	8.911	37.533	2.950	20.769	14.260	1.666	10.321	12.322	8.652
CPK	31.499	2.533	18.712	14.394	1.980	1.766	49.861	3.347	8.911	37.533	2.950	20.769	14.260	1.666	10.321	12.322	8.652
RESULT	OK	OK	OK	OK	OK	REF	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

COMMENT : ITEM74* DATAS TEST WITH WT-110 (TEST TIME 1 MINUTE)



lite-On Electronics (DG) Co. Ltd.

光寶電子(東莞)有限公司

CPK REPORT (mixing source-4)

CUSTOMER :

DELL

PROJECT NAME :

COMANECI

DELL P/N :

6G356

MODEL

PA-1900-05D

PREPARED BY :

陈金东 1.18'02

CHECKED BY :

王东 1/26'02

APPROVED BY :

for Peter 1/26'02

Item	Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on	
Vin/Fin	90V/47Hz		90V/60Hz		115V/60Hz		132V/63Hz		180V/47Hz		240V/50Hz		240V/50Hz		264V/63Hz	
Load	4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A	
Item Content	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush
NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	570.191	25.781	14.485	5.187	374.193	40.093	369.178	2.687	368.428	36.875	351.043	46.25	10.962	39.812	350.637	41.218
2	545.573	24.625	12.12	8.656	356.782	37.312	356.795	14.062	356.365	35.312	350.083	41.187	10.691	41.531	349.933	41.343
3	588.646	26.906	11.127	8.812	374.828	36.843	374.098	14.093	373.194	35.156	367.929	41.25	10.821	40.906	367.309	42.125
4	642.156	24.593	14.895	5	372.666	37.906	372.155	14	371.921	35.437	366.855	41.5	10.997	41.687	366.981	41.5
5	522.551	24.562	10.84	8.718	375.912	39.875	375.943	14.218	374.819	38.843	371.039	41	10.693	40.437	369.838	41.562
6	452.159	25.781	15.112	8.687	358.312	39.812	364.905	13.906	364.207	38.062	354.267	40.781	11.287	40.812	353.466	40.468
7	590.018	25.562	12.08	4.937	372.798	6.062	372.439	14	371.933	34.5	367.751	46.562	10.845	40.406	366.634	41.25
8	577.422	26.312	12.706	8.843	363.971	6	364.192	14.343	363.582	39.062	358.78	40.562	11.118	40.312	359.029	41.062
9	548.605	24.593	12.522	8.593	360.837	38.187	360.612	13.906	360.014	36.25	351.378	39.218	10.692	6.406	350.301	41.281
10	570.505	25.718	11.099	8.468	363.308	6.25	363.004	13.843	361.482	36.875	353.378	41.625	10.876	41.625	352.202	12.406
11	545.198	25.468	14.654	5.156	356.269	6.125	357.206	14.062	355.662	36.093	351.7	45.125	11.217	40.125	351.159	41.562
12	572.561	24.25	11.221	5.218	371.488	36.187	371.747	13.593	369.643	37.031	362.375	41.218	11.122	41.781	361.11	43.437
13	577.591	25.968	13.542	5.187	380.356	41.562	381.686	13.656	378.8	36.343	357.336	41.937	11.133	41.375	355.258	41.375
14	589.897	25.312	16.201	8.718	360.205	38.812	361.445	14.093	360.74	6.187	354.796	40.687	11.328	40.562	355.283	41.468
15	589.405	25.812	12.609	5.187	371.996	38.406	372.018	14.031	371.619	37.375	366.974	39.812	11.235	39.468	366.487	40.406
16	389.601	25.843	10.641	8.375	352.571	39.468	352.15	2.75	352.033	34.843	345.846	46	0.001	41.375	345.546	40.656
17	578.686	25.781	11.532	8.312	367.052	38.5	370.767	13.468	369.752	6.281	358.634	43.843	10.779	44.062	359.268	43.5
18	463.113	24.5	14.814	8.531	358.071	6.312	357.705	13.812	357.267	35.437	352.882	41.218	10.608	41.093	352.096	42.593
19	535.963	24.375	12.994	8.968	351.454	38.156	351.508	14.312	350.988	36.593	347.872	41.718	11.377	39.062	345.749	13.187
20	475.686	25.906	14.011	5.187	364.421	39.718	364.708	4.062	364.294	38.875	360.851	40.656	11.114	40.375	358.483	41.156
21	572.73	25.718	14.021	5.312	382.26	37.937	380.237	14.156	380.837	35.656	376.295	44.25	10.84	4.906	375.077	41.187
22	497.229	25.781	15.507	8.562	342.026	39.187	344.319	13.843	344.44	37.656	338.796	40.562	11.057	41.343	338.794	39.75
23	336.24	26.531	16.144	5.125	360.729	39.093	361.489	14.062	361.401	38.937	357.596	41.312	9.989	41	357.163	40.25
24	570.861	26.5	13.827	8.406	356.985	37.625	356.856	13.5	356.776	35	352.379	45.437	10.838	41.343	351.923	41.375
25	549.072	23.656	14.591	8.5	358.635	37.812	358.099	13.687	357.659	36.375	353.396	41.281	10.84	40.125	352.877	43
26	549.072	23.656	14.591	8.5	358.635	37.812	358.099	13.687	357.659	36.375	353.396	41.281	10.84	40.125	352.877	43
27	524.853	24.031	14.42	8.625	365.339	37.187	368.501	13.968	368.155	35.781	359.868	42.406	11.186	42.031	359.403	41.812
28	576.793	26.875	15.107	5.218	360.618	39.531	364.489	13.718	362.478	35.343	354.879	45.156	11.409	41.437	354.384	41.718
29	578.788	25.656	12.32	8.343	365.524	38.906	365.437	13.593	364.813	39.062	359.953	41.656	10.983	41.593	359.426	41.5
30	570.539	25.562	13.608	8.875	357.074	39.406	357.007	14.187	356.336	39.875	351.618	41.093	11.22	39.875	351.145	40.625
UNIT	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A
UCL	4000	50	30	50	4000	50	4000	50	4000	100	4000	100	30	100	4000	100
LCL																
MAX	642.156	26.906	16.201	8.968	382.260	41.562	381.686	14.343	380.837	39.875	376.295	46.562	11.409	44.062	375.077	43.500
MIN	336.240	23.656	10.641	4.937	342.026	6.000	344.319	2.687	344.440	6.187	338.796	39.218	0.001	4.906	338.794	12.406
AVER	541.723	25.387	13.445	7.340	363.844	33.203	364.293	12.843	363.577	34.716	356.998	42.219	10.603	38.566	356.328	39.592
S	63.721	0.898	1.629	1.698	9.100	12.354	8.697	3.295	8.483	7.880	8.037	2.048	2.023	8.998	7.948	7.339
Ca																
Cp	18.091	9.141	3.388	8.374	133.195	0.453	139.350	3.759	142.895	2.762	151.088	9.404	3.196	2.276	152.815	2.744
CPK	18.091	9.141	3.388	8.374	133.195	0.453	139.350	3.759	142.895	2.762	151.088	9.404	3.196	2.276	152.815	2.744
RESULT	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF

Item	Combine						Combine					
Vin/Fin	264V/63Hz	240V/50Hz	180V/47Hz	264V/63Hz	240V/50Hz	180V/47Hz	180V/47Hz	240V/60Hz	265V/63Hz	180V/47Hz	240V/60Hz	265V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	17	18	19	20	21	22	23	24	25	26	27	28
1	19.518	19.937	19.518	0.262	0.109	0.264	19.937	19.518	19.937	0.109	0.263	0.11
2	19.412	19.906	19.412	0.226	0.096	0.226	19.906	19.412	19.906	0.097	0.228	0.097
3	19.493	19.962	19.5	0.247	0.104	0.246	19.968	19.493	19.962	0.104	0.247	0.105
4	19.418	19.912	19.425	0.243	0.107	0.242	19.912	19.425	19.912	0.106	0.244	0.108
5	19.462	19.912	19.456	0.251	0.117	0.254	19.912	19.456	19.912	0.117	0.253	0.118
6	19.331	19.8	19.331	0.246	0.111	0.248	19.8	19.325	19.793	0.111	0.247	0.112
7	19.45	19.906	19.45	0.241	0.102	0.245	19.906	19.45	19.906	0.101	0.241	0.102
8	19.431	19.893	19.431	0.241	0.108	0.24	19.893	19.437	19.893	0.11	0.242	0.11
9	19.543	20	19.543	0.243	0.1	0.243	20	19.543	20	0.099	0.243	0.1
10	19.493	19.918	19.493	0.252	0.101	0.253	19.918	19.493	19.918	0.102	0.253	0.102
11	19.381	19.868	19.381	0.241	0.101	0.24	19.868	19.387	19.868	0.101	0.24	0.102
12	19.475	19.968	19.487	0.251	0.109	0.251	19.968	19.487	19.968	0.108	0.251	0.109
13	19.462	19.937	19.462	0.255	0.103	0.257	19.937	19.468	19.937	0.103	0.256	0.104
14	19.381	19.868	19.381	0.249	0.096	0.249	19.868	19.387	19.868	0.096	0.251	0.096
15	19.312	19.8	19.318	0.256	0.113	0.255	19.806	19.312	19.806	0.113	0.256	0.113
16	19.587	19.962	19.587	0.261	0.114	0.26	19.962	19.587	19.962	0.115	0.261	0.115
17	19.437	19.931	19.443	0.255	0.111	0.255	19.931	19.437	19.931	0.112	0.254	0.112
18	19.562	20.043	19.562	0.254	0.103	0.254	20.05	19.568	20.043	0.103	0.253	0.104
19	19.343	19.825	19.343	0.248	0.105	0.251	19.825	19.35	19.831	0.104	0.248	0.107
20	19.468	19.943	19.475	0.243	0.098	0.245	19.943	19.475	19.943	0.097	0.245	0.1
21	19.475	19.95	19.481	0.259	0.108	0.258	19.95	19.481	19.95	0.108	0.256	0.108
22	19.456	19.918	19.462	0.246	0.106	0.245	19.912	19.462	19.918	0.105	0.246	0.107
23	19.631	19.975	19.631	0.253	0.102	0.251	19.975	19.637	19.975	0.102	0.254	0.102
24	19.537	19.906	19.537	0.251	0.102	0.249	19.906	19.537	19.906	0.102	0.251	0.103
25	19.537	19.9	19.537	0.253	0.111	0.252	19.906	19.537	19.906	0.111	0.253	0.112
26	19.537	19.9	19.537	0.253	0.111	0.252	19.906	19.537	19.906	0.111	0.253	0.112
27	19.381	19.881	19.387	0.251	0.108	0.25	19.881	19.393	19.881	0.109	0.251	0.109
28	19.412	19.868	19.418	0.252	0.105	0.254	19.868	19.425	19.868	0.105	0.251	0.105
29	19.462	19.893	19.462	0.256	0.108	0.254	19.893	19.462	19.893	0.109	0.256	0.109
30	19.425	19.831	19.431	0.241	0.096	0.241	19.831	19.431	19.831	0.096	0.245	0.096
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.631	20.043	19.631	0.262	0.117	0.264	20.050	19.637	20.043	0.117	0.263	0.118
MIN	19.312	19.800	19.318	0.226	0.096	0.226	19.800	19.312	19.793	0.096	0.228	0.096
AVER	19.460	19.910	19.463	0.249	0.106	0.249	19.911	19.464	19.911	0.106	0.250	0.106
S	0.076	0.055	0.075	0.007	0.006	0.007	0.055	0.075	0.055	0.006	0.007	0.006
Ca	0.341	0.189	0.338				0.190	0.337	0.189			
Cp	3.739	5.140	3.775	11.240	23.824	11.238	5.110	3.762	5.165	23.053	11.939	23.296
CPK	2.465	4.170	2.499	11.240	23.824	11.238	4.141	2.495	4.187	23.053	11.939	23.296
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Combine						Combine					
Vin/Fin	132V/63Hz	115V/60Hz	90V/47Hz	132V/63Hz	115V/60Hz	90V/47Hz	90V/47Hz	115V/60Hz	137V/63Hz	90V/47Hz	115V/60Hz	137V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	29	30	31	32	33	34	35	36	37	38	39	40
1	19.512	19.943	19.512	0.306	0.09	0.304	19.943	19.512	19.937	0.088	0.301	0.088
2	19.4	19.906	19.406	0.263	0.084	0.262	19.906	19.406	19.906	0.083	0.263	0.084
3	19.487	19.962	19.487	0.286	0.09	0.285	19.962	19.493	19.968	0.089	0.285	0.09
4	19.425	19.912	19.425	0.282	0.092	0.281	19.912	19.431	19.912	0.09	0.282	0.094
5	19.443	19.912	19.443	0.29	0.103	0.291	19.912	19.443	19.912	0.101	0.289	0.102
6	19.325	19.8	19.325	0.284	0.096	0.285	19.793	19.325	19.8	0.091	0.285	0.091
7	19.437	19.906	19.437	0.278	0.09	0.278	19.906	19.437	19.906	0.088	0.279	0.088
8	19.431	19.893	19.431	0.28	0.094	0.28	19.893	19.431	19.893	0.095	0.279	0.095
9	19.531	19.993	19.531	0.281	0.087	0.281	20	19.537	19.993	0.086	0.28	0.087
10	19.475	19.918	19.475	0.291	0.09	0.29	19.918	19.481	19.918	0.088	0.289	0.09
11	19.375	19.868	19.375	0.278	0.088	0.277	19.868	19.381	19.868	0.087	0.277	0.088
12	19.481	19.968	19.481	0.29	0.096	0.29	19.968	19.481	19.968	0.093	0.288	0.094
13	19.456	19.937	19.456	0.298	0.09	0.296	19.937	19.462	19.937	0.088	0.295	0.09
14	19.381	19.862	19.387	0.29	0.085	0.288	19.868	19.387	19.868	0.084	0.288	0.085
15	19.312	19.8	19.318	0.295	0.098	0.295	19.8	19.318	19.806	0.097	0.294	0.099
16	19.575	19.962	19.575	0.303	0.099	0.3	19.968	19.575	19.962	0.097	0.301	0.1
17	19.431	19.931	19.431	0.298	0.09	0.296	19.931	19.431	19.925	0.09	0.294	0.092
18	19.562	20.05	19.562	0.293	0.091	0.292	20.05	19.568	20.05	0.09	0.292	0.091
19	19.35	19.831	19.35	0.287	0.093	0.287	19.825	19.35	19.825	0.091	0.286	0.091
20	19.468	19.943	19.475	0.279	0.082	0.279	19.943	19.475	19.943	0.08	0.28	0.081
21	19.475	19.95	19.481	0.296	0.097	0.294	19.95	19.481	19.95	0.095	0.296	0.096
22	19.456	19.918	19.456	0.283	0.091	0.283	19.918	19.456	19.912	0.089	0.283	0.092
23	19.618	19.975	19.618	0.288	0.089	0.287	19.975	19.618	19.975	0.087	0.287	0.088
24	19.531	19.906	19.531	0.29	0.089	0.288	19.906	19.531	19.906	0.087	0.287	0.087
25	19.525	19.9	19.525	0.293	0.095	0.293	19.906	19.525	19.906	0.092	0.292	0.095
26	19.525	19.9	19.525	0.293	0.095	0.293	19.906	19.525	19.906	0.092	0.292	0.095
27	19.387	19.881	19.393	0.291	0.093	0.291	19.881	19.393	19.881	0.093	0.291	0.094
28	19.412	19.868	19.412	0.292	0.092	0.291	19.868	19.418	19.868	0.091	0.291	0.092
29	19.456	19.887	19.456	0.296	0.093	0.295	19.893	19.456	19.893	0.094	0.295	0.095
30	19.406	19.831	19.412	0.279	0.085	0.276	19.831	19.412	19.831	0.085	0.275	0.085
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.618	20.050	19.618	0.306	0.103	0.304	20.050	19.618	20.050	0.101	0.301	0.102
MIN	19.312	19.800	19.318	0.263	0.082	0.262	19.793	19.318	19.800	0.080	0.263	0.081
AVER	19.455	19.910	19.456	0.288	0.092	0.288	19.911	19.458	19.911	0.090	0.287	0.091
S	0.073	0.055	0.072	0.009	0.005	0.008	0.056	0.072	0.055	0.004	0.008	0.005
Ca	0.347	0.189	0.345				0.190	0.344	0.189			
Cp	3.884	5.115	3.935	8.047	29.224	8.345	5.018	3.921	5.151	30.427	8.739	28.252
CPK	2.535	4.149	2.576	8.047	29.224	8.345	4.066	2.574	4.176	30.427	8.739	28.252
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Dynamic		Dynamic		Dynamic		Dynamic		load regulation						INPUT/OUTPUT		
Vin/Fin	90V/60Hz		100V/60Hz		240V/50Hz		264V/50Hz		264V/50Hz						264V/50Hz		
Load	0~4.5A		4.5~0A		0~4.5A		4.5~0A		4.51A		5A		5.5A		4.51A		
Item Content	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vpp-1	Vdc-2	Vpp-2	Vdc-3	Vpp-3	Irms	EFF	PFC
NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
1	19.95	19.493	19.562	19.956	19.956	19.550	19.462	19.937	19.518	0.262	19.468	0.288	19.412	0.314	0.402	86.787	0.958
2	19.918	19.387	19.393	19.925	19.918	19.356	19.368	19.925	19.425	0.227	19.362	0.248	19.325	0.271	0.400	86.914	0.957
3	19.987	19.431	19.493	19.987	19.987	19.525	19.443	19.987	19.500	0.246	19.450	0.271	19.400	0.295	0.401	86.875	0.958
4	19.925	19.375	19.475	19.925	19.925	19.381	19.462	19.925	19.443	0.244	19.387	0.270	19.343	0.294	0.401	86.578	0.959
5	19.931	19.381	19.393	19.918	19.925	19.400	19.437	19.918	19.456	0.250	19.406	0.276	19.356	0.300	0.401	86.748	0.957
6	19.806	19.375	19.287	19.806	19.818	19.368	19.381	19.800	19.337	0.246	19.275	0.271	19.225	0.296	0.400	86.247	0.960
7	19.925	19.412	19.443	19.918	19.918	19.400	19.418	19.918	19.450	0.241	19.393	0.264	19.343	0.289	0.400	86.838	0.957
8	19.912	19.45	19.368	19.900	19.912	19.450	19.456	19.900	19.437	0.243	19.381	0.265	19.331	0.290	0.400	86.838	0.957
9	20.012	19.562	19.487	20.012	20.018	19.487	19.493	20.006	19.543	0.242	19.487	0.267	19.437	0.289	0.404	86.584	0.956
10	19.943	19.512	19.412	19.943	19.956	19.518	19.431	19.950	19.500	0.252	19.437	0.277	19.387	0.300	0.400	87.251	0.957
11	19.881	19.35	19.400	19.881	19.893	19.350	19.375	19.893	19.393	0.239	19.331	0.264	19.293	0.286	0.401	86.848	0.955
12	19.981	19.481	19.443	19.968	19.981	19.450	19.525	19.975	19.493	0.251	19.431	0.275	19.387	0.301	0.402	86.781	0.957
13	19.956	19.506	19.393	19.950	19.975	19.475	19.475	19.962	19.475	0.255	19.418	0.281	19.368	0.305	0.403	86.335	0.957
14	19.875	19.431	19.431	19.881	19.887	19.368	19.343	19.881	19.393	0.250	19.337	0.275	19.287	0.299	0.400	86.594	0.959
15	19.812	19.325	19.356	19.812	19.818	19.262	19.362	19.806	19.325	0.255	19.262	0.281	19.218	0.305	0.400	86.467	0.957
16	19.981	19.556	19.512	19.975	19.987	19.568	19.625	19.975	19.587	0.259	19.537	0.286	19.487	0.311	0.403	86.915	0.956
17	19.937	19.468	19.375	19.937	19.943	19.381	19.450	19.943	19.450	0.253	19.400	0.280	19.362	0.304	0.400	87.063	0.958
18	20.068	19.612	19.575	20.062	20.068	19.512	19.518	20.068	19.575	0.254	19.525	0.278	19.468	0.302	0.403	86.635	0.960
19	19.843	19.375	19.393	19.831	19.850	19.312	19.293	19.831	19.356	0.247	19.300	0.271	19.250	0.295	0.400	86.607	0.956
20	19.962	19.468	19.475	19.956	19.962	19.437	19.512	19.950	19.487	0.242	19.431	0.267	19.381	0.290	0.402	86.524	0.959
21	19.962	19.531	19.418	19.968	19.962	19.412	19.456	19.968	19.487	0.256	19.437	0.279	19.381	0.304	0.403	86.508	0.957
22	19.925	19.406	19.418	19.925	19.931	19.412	19.418	19.925	19.468	0.247	19.412	0.271	19.362	0.293	0.402	86.596	0.958
23	20	19.643	19.650	20.000	20.012	19.656	19.656	20.006	19.631	0.251	19.587	0.276	19.543	0.298	0.403	87.164	0.957
24	19.925	19.568	19.475	19.918	19.925	19.525	19.575	19.925	19.537	0.248	19.493	0.276	19.450	0.299	0.401	87.091	0.958
25	19.912	19.525	19.462	19.912	19.925	19.568	19.575	19.912	19.531	0.253	19.493	0.278	19.450	0.303	0.402	86.958	0.957
26	19.912	19.525	19.462	19.912	19.925	19.568	19.575	19.912	19.531	0.253	19.493	0.278	19.450	0.303	0.402	86.958	0.957
27	19.9	19.431	19.331	19.900	19.900	19.425	19.375	19.893	19.400	0.251	19.343	0.276	19.300	0.300	0.400	86.676	0.959
28	19.9	19.35	19.462	19.887	19.906	19.450	19.393	19.893	19.431	0.252	19.381	0.276	19.331	0.302	0.402	86.501	0.957
29	19.906	19.4	19.406	19.906	19.918	19.462	19.506	19.912	19.462	0.254	19.406	0.280	19.356	0.308	0.400	87.153	0.956
30	19.868	19.343	19.406	19.862	19.881	19.381	19.456	19.875	19.437	0.242	19.381	0.265	19.331	0.287	0.400	86.771	0.958
UNIT	V	V	V	V	V	V	V	V	V	V	V	V	V	V	A	%	
UCL	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	0.50	20.6	0.50	20.6	0.50	0.7		
LCL	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9		18.9		18.9			83	0.8
MAX	20.068	19.643	19.650	20.062	20.068	19.656	19.656	20.068	19.631	0.262	19.587	0.288	19.543	0.314	0.404	87.251	0.960
MIN	19.806	19.325	19.287	19.806	19.818	19.262	19.293	19.800	19.325	0.227	19.262	0.248	19.218	0.271	0.400	86.247	0.955
AVER	19.927	19.456	19.439	19.924	19.933	19.447	19.460	19.926	19.469	0.249	19.415	0.274	19.367	0.298	0.401	86.760	0.957
S	0.056	0.085	0.074	0.056	0.055	0.088	0.085	0.057	0.072	0.007	0.076	0.008	0.075	0.009	0.001	0.249	0.001
Ca	0.208	0.346	0.366	0.205	0.215	0.357	0.341	0.207	0.331		0.394		0.450				
Cp	5.032	3.345	3.829	5.026	5.160	3.214	3.336	4.958	3.952	12.040	3.722	9.580	3.757	7.838	79.180	5.029	43.895
CPK	3.983	2.187	2.426	3.995	4.050	2.068	2.200	3.933	2.644	12.040	2.254	9.580	2.065	7.838	79.180	5.029	43.895
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	REF

Item	INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			HOLD-UP	POWER LOSS
Vin/Fin	230V/50Hz			180V/50Hz			137V/50Hz			115V/60Hz			90V/60Hz			90V/60Hz	240V/50Hz
Load	4.51A			4.51A			4.51A			4.51A			4.51A			4.51A	0A
Item Content	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Hold-up time	Pin
NO.	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74*
1	0.452	86.663	0.978	0.604	86.854	0.934	0.758	87.659	0.969	0.881	87.317	0.999	1.156	85.738	0.991	27.202	0.660
2	0.451	86.675	0.977	0.574	86.465	0.984	0.757	87.769	0.966	0.878	87.260	0.998	1.152	85.643	0.992	27.880	0.678
3	0.451	86.636	0.981	0.570	86.561	0.993	0.755	87.932	0.969	0.881	87.452	0.997	1.156	85.767	0.990	28.381	0.672
4	0.452	86.426	0.978	0.570	86.246	0.994	0.761	87.582	0.964	0.879	87.167	1.000	1.150	85.622	0.995	27.634	0.666
5	0.451	86.621	0.978	0.613	86.959	0.917	0.756	87.843	0.967	0.877	87.313	1.000	1.146	85.980	0.995	27.626	0.666
6	0.451	86.123	0.978	0.601	86.381	0.935	0.756	87.348	0.966	0.877	86.845	0.999	1.149	85.377	0.993	26.897	0.678
7	0.450	86.800	0.978	0.606	87.068	0.925	0.757	87.951	0.965	0.877	87.376	0.998	1.147	85.948	0.994	27.383	0.702
8	0.450	86.771	0.977	0.568	86.541	0.993	0.754	87.927	0.968	0.876	87.402	0.998	1.146	85.815	0.994	28.543	0.666
9	0.454	86.499	0.978	0.600	86.441	0.946	0.764	87.564	0.964	0.884	87.244	0.998	1.157	85.646	0.994	27.023	0.720
10	0.450	87.196	0.977	0.592	87.058	0.950	0.755	88.009	0.966	0.878	87.648	0.996	1.152	86.143	0.990	26.972	0.678
11	0.450	86.657	0.978	0.599	86.715	0.939	0.758	87.621	0.963	0.876	87.268	0.999	1.147	85.652	0.994	26.614	0.660
12	0.452	86.668	0.979	0.607	86.591	0.931	0.759	87.756	0.966	0.880	87.236	0.999	1.151	85.790	0.995	28.058	0.690
13	0.453	86.298	0.979	0.603	86.364	0.939	0.759	87.452	0.968	0.883	86.958	0.998	1.157	85.420	0.992	26.807	0.660
14	0.451	86.337	0.979	0.591	86.204	0.956	0.756	87.591	0.967	0.877	87.066	1.000	1.146	85.544	0.997	27.311	0.672
15	0.449	86.448	0.979	0.576	86.192	0.978	0.752	87.485	0.970	0.876	87.008	0.998	1.146	85.411	0.995	28.175	0.726
16	0.453	86.838	0.978	0.593	86.657	0.956	0.762	87.832	0.965	0.885	87.378	0.996	1.161	85.795	0.990	26.528	0.672
17	0.450	86.870	0.979	0.568	86.663	0.993	0.757	87.899	0.966	0.879	87.344	0.997	1.152	85.894	0.992	26.677	0.672
18	0.454	86.438	0.980	0.601	86.476	0.946	0.763	87.587	0.967	0.888	87.171	0.996	1.165	85.470	0.990	26.633	0.672
19	0.450	86.539	0.978	0.621	86.797	0.902	0.755	87.546	0.967	0.877	87.039	0.998	1.149	85.469	0.993	27.792	0.696
20	0.453	86.355	0.979	0.626	86.866	0.899	0.757	87.573	0.970	0.883	86.966	0.998	1.159	85.466	0.991	27.372	0.678
21	0.453	86.251	0.980	0.605	86.478	0.937	0.758	87.466	0.969	0.883	86.997	0.999	1.156	85.447	0.994	27.777	0.678
22	0.452	86.502	0.979	0.593	86.330	0.956	0.760	87.529	0.965	0.881	87.020	0.999	1.154	85.467	0.994	27.308	0.702
23	0.453	87.041	0.979	0.587	86.896	0.967	0.762	87.957	0.966	0.883	87.582	0.998	1.157	86.040	0.992	27.524	0.678
24	0.451	86.939	0.979	0.600	87.024	0.940	0.757	87.881	0.969	0.884	87.537	0.993	1.161	85.811	0.987	25.813	0.666
25	0.452	86.872	0.978	0.592	86.739	0.955	0.760	87.910	0.965	0.880	87.584	0.999	1.151	85.912	0.995	27.367	0.672
26	0.452	86.872	0.978	0.592	86.739	0.955	0.760	87.910	0.965	0.880	87.584	0.999	1.151	85.912	0.995	27.367	0.672
27	0.450	86.496	0.980	0.568	86.394	0.994	0.756	87.591	0.967	0.877	87.183	0.998	1.150	85.664	0.992	27.664	0.660
28	0.452	86.304	0.978	0.596	86.407	0.948	0.757	87.558	0.966	0.883	87.166	0.995	1.161	85.307	0.987	26.727	0.702
29	0.450	86.960	0.976	0.567	86.815	0.994	0.756	88.071	0.965	0.876	87.623	0.999	1.148	85.937	0.993	26.744	0.642
30	0.450	86.761	0.980	0.568	86.350	0.994	0.754	87.857	0.968	0.878	87.236	0.998	1.149	85.664	0.993	27.769	0.702
UNIT	A	%		A	%		A	%		A	%		A	%		mS	W
UCL	0.7			1.5			1.5			1.5			1.5				1.0
LCL		83	0.9		83	0.8		83	0.9		83	0.9		83	0.9	10	
MAX	0.454	87.196	0.981	0.626	87.068	0.994	0.764	88.071	0.970	0.888	87.648	1.000	1.165	86.143	0.997	28.543	0.726
MIN	0.449	86.123	0.976	0.567	86.192	0.899	0.752	87.348	0.963	0.876	86.845	0.993	1.146	85.307	0.987	25.813	0.642
AVER	0.451	86.629	0.979	0.592	86.609	0.955	0.758	87.722	0.967	0.880	87.266	0.998	1.153	85.692	0.993	27.319	0.679
S	0.001	0.258	0.001	0.017	0.259	0.028	0.003	0.198	0.002	0.003	0.222	0.002	0.005	0.222	0.002	0.611	0.019
Ca																	
Cp	61.182	4.685	24.346	18.060	4.641	1.837	87.050	7.950	12.126	64.191	6.406	21.176	21.771	4.050	13.026	9.443	5.699
CPK	61.182	4.685	24.346	18.060	4.641	1.837	87.050	7.950	12.126	64.191	6.406	21.176	21.771	4.050	13.026	9.443	5.699
RESULT	OK	OK	OK	OK	OK	REF	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

COMMENT : ITEM74* DATAS TEST WITH WT-110 (TEST TIME 1 MINUTE)



lite-On Electronics (DG) Co. Ltd.

光寶電子(東莞)有限公司

CPK REPORT (mixing source-5)

CUSTOMER : DELL

PROJECT NAME : COMANECI

DELL P/N : 6G356

MODEL PA-1900-05D

PREPARED BY :

陈金东

1.18'02

CHECKED BY :

王东 1/26'02

APPROVED BY :

for Peter 1/26'02

Item	Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on	
Vin/Fin	90V/47Hz		90V/60Hz		115V/60Hz		132V/63Hz		180V/47Hz		240V/50Hz		240V/50Hz		264V/63Hz	
Load	4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A	
Item Content	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush
NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	577.762	24.312	11.563	8.5	364.176	35.937	363.863	4.406	363.061	38.625	359.137	41.687	11.225	41.25	357.16	42.812
2	546.251	24.968	11.2	8.75	341.763	41.187	343.178	14.062	342.511	6.312	336.753	42.437	10.978	40.875	336.811	42.25
3	601.19	25.812	11.35	8.656	359.992	37.375	360.535	13.875	359.46	35.093	354.954	41.562	10.125	41.5	353.849	40.843
4	568.061	24.187	11.532	8.312	363.275	35.906	362.805	4.375	362.001	35.625	353.719	46.656	11.281	5.687	352.462	41.812
5	567.339	25.812	11.399	5.218	369.022	36.718	366.552	13.781	364.636	35.062	351.967	41.593	9.876	40	350.481	42.593
6	568.352	26.406	11.342	8.656	360.433	39.906	360.478	13.968	359.429	6.312	355.214	44.312	11.097	43.875	354.846	43.187
7	440.558	23.718	11.477	8.468	347.994	39	347.969	13.718	346.796	6.093	343.029	42.5	10.759	42.031	342.584	39.937
8	448.967	25.968	11.672	8.562	354.73	38.687	354.758	13.906	354.166	6.312	349.29	43.781	11.48	43.093	349.004	42.968
9	471.861	25.718	11.201	8.343	378.067	35.968	376.372	13.718	374.414	35.062	367.821	45.625	10.929	40.937	367.922	42.625
10	565.585	24.187	11.659	8.25	355.589	36.375	357.24	13.406	356.258	35.312	346.601	44.875	11.338	44.687	346.118	43.625
11	581.691	25.687	11.262	8.375	368.453	36.375	368.337	13.468	368.162	35.125	363.242	46.125	11.162	41.093	362.353	42.718
12	576.988	27	12.639	8.5	363.049	38.781	362.801	13.812	361.817	6.093	357.129	42.25	11.069	41.062	357.447	42.437
13	577.618	26	12.335	5.218	362.807	38.25	362.319	4.656	362.132	35.406	358.188	44.25	11.41	44.312	356.531	44
14	577.014	25.218	11.567	5.125	365.784	36.156	364.889	13.687	364.29	38.281	357.482	41.343	11.056	39.656	357.389	41.968
15	554.788	25.843	12.105	8.281	346.159	39.75	345.983	13.375	345.078	6.218	339.317	43.906	11.416	42.281	339.657	42.625
16	559.097	27.687	11.657	8.437	351.098	36.093	351.376	13.718	350.281	35.437	346.711	43.937	11.321	43.156	345.828	44.062
17	513.061	23.125	11.396	5.062	369.2	39.968	380.477	13.187	377.131	35.25	358.382	46.718	11.258	40.5	357.49	43.312
18	587.996	24.843	11.611	8.187	369.847	39.25	369.301	2.656	369.64	37.093	364.864	41.281	11.483	41.343	364.071	43.406
19	559.617	26.062	11.426	8.406	352.611	36.75	352.929	13.562	352.016	35.218	348.275	46.75	11.137	38.468	346.915	42.156
20	557.121	25.406	11.927	8.312	354.151	35.968	353.503	13.468	352.071	36.937	344.496	44.656	10.949	42.25	343.369	45.531
21	454.954	24.375	11.225	5.25	358.538	36.156	358.651	4.687	357.936	35.687	353.39	41.656	10.231	40.875	352.141	42.343
22	559.658	25.125	11.56	5.093	354.111	36.218	353.978	13.687	353.476	35.593	350.192	40.531	11.35	40	348.62	12.343
23	438.46	23.562	11.395	8.187	343.565	40.406	348.987	13.187	347.891	6.062	338.953	42.156	10.935	41.312	337.715	42.906
24	570.278	25.093	11.267	8.25	358.192	41.656	357.561	4.093	357.483	35.062	353.903	46.937	11.365	41.187	352.918	43.5
25	461.285	24.343	11.525	8.312	367.488	36.218	367.785	13.687	366.934	37.281	362.912	41.781	11.252	41.906	361.94	43.062
26	441.269	24.218	11.456	8.593	356.427	41.062	356.435	13.812	355.526	6.218	350.582	42.812	11.451	41.812	349.893	42.781
27	493.58	25.875	10.812	8.531	351.951	37.593	351.83	13.656	350.783	36.187	347.974	42.312	10.645	41.437	346.667	42.718
28	590.018	25.562	12.08	4.937	372.798	36.062	372.439	14	371.933	34.5	367.751	46.562	10.845	40.406	366.634	41.25
29	577.422	26.312	12.706	8.843	363.971	36	364.192	14.343	363.582	39.062	358.78	40.562	11.118	40.312	359.029	41.062
30	548.605	24.593	12.522	8.593	360.837	38.187	360.612	13.906	360.014	36.25	351.378	39.218	10.692	6.406	350.301	41.281
UNIT	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A
UCL	4000	50	30	50	4000	50	4000	50	4000	100	4000	100	30	100	4000	100
LCL																
MAX	601.190	27.687	12.706	8.843	378.067	41.656	380.477	14.343	377.131	39.062	367.821	46.937	11.483	44.687	367.922	45.531
MIN	438.460	23.125	10.812	4.937	341.763	35.906	343.178	2.656	342.511	6.062	336.753	39.218	9.876	5.687	336.811	12.343
AVER	537.882	25.234	11.629	7.674	359.536	37.799	359.938	11.795	359.030	28.092	353.080	43.359	11.041	39.124	352.272	41.604
S	53.172	1.039	0.452	1.437	8.791	1.878	8.809	3.911	8.659	13.470	8.168	2.178	0.403	9.093	8.142	5.632
Ca																
Cp	21.704	7.943	13.563	9.816	138.041	2.166	137.734	3.256	140.162	1.779	148.829	8.670	15.694	2.232	149.339	3.456
CPK	21.704	7.943	13.563	9.816	138.041	2.166	137.734	3.256	140.162	1.779	148.829	8.670	15.694	2.232	149.339	3.456
RESULT	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF

Item	Combine						Combine					
Vin/Fin	264V/63Hz	240V/50Hz	180V/47Hz	264V/63Hz	240V/50Hz	180V/47Hz	180V/47Hz	240V/60Hz	265V/63Hz	180V/47Hz	240V/60Hz	265V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	17	18	19	20	21	22	23	24	25	26	27	28
1	19.412	19.831	19.412	0.25	0.115	0.256	19.837	19.412	19.831	0.113	0.252	0.115
2	19.556	19.981	19.556	0.265	0.119	0.264	19.981	19.556	19.981	0.118	0.265	0.12
3	19.3	19.797	19.306	0.26	0.117	0.262	19.737	19.312	19.737	0.117	0.262	0.118
4	19.418	19.887	19.418	0.255	0.116	0.26	19.887	19.425	19.887	0.115	0.256	0.117
5	19.437	19.925	19.443	0.253	0.105	0.255	19.925	19.45	19.925	0.105	0.252	0.106
6	19.462	19.95	19.456	0.258	0.116	0.258	19.956	19.468	19.956	0.115	0.261	0.117
7	19.462	19.943	19.456	0.257	0.115	0.257	19.943	19.462	19.943	0.115	0.258	0.116
8	19.362	19.843	19.368	0.258	0.12	0.258	19.843	19.368	19.843	0.119	0.258	0.12
9	19.412	19.906	19.412	0.252	0.118	0.25	19.906	19.406	19.906	0.119	0.252	0.119
10	19.443	19.912	19.443	0.253	0.109	0.253	19.912	19.45	19.912	0.109	0.254	0.11
11	19.437	19.931	19.443	0.251	0.111	0.25	19.937	19.45	19.937	0.11	0.246	0.112
12	19.368	19.843	19.368	0.254	0.103	0.253	19.843	19.368	19.843	0.103	0.254	0.103
13	19.431	19.887	19.431	0.261	0.113	0.262	19.887	19.437	19.887	0.113	0.261	0.114
14	19.425	19.887	19.425	0.256	0.111	0.254	19.887	19.425	19.887	0.111	0.256	0.111
15	19.431	19.925	19.431	0.254	0.118	0.255	19.925	19.437	19.925	0.118	0.253	0.118
16	19.356	19.875	19.368	0.255	0.108	0.255	19.875	19.368	19.875	0.108	0.255	0.109
17	19.468	19.943	19.475	0.262	0.117	0.267	19.943	19.481	19.943	0.116	0.26	0.118
18	19.412	19.875	19.418	0.271	0.12	0.267	19.875	19.418	19.875	0.12	0.269	0.121
19	19.393	19.85	19.4	0.263	0.114	0.264	19.856	19.4	19.85	0.112	0.262	0.115
20	19.462	19.943	19.462	0.257	0.12	0.258	19.943	19.468	19.943	0.12	0.256	0.121
21	19.412	19.868	19.406	0.254	0.114	0.257	19.868	19.412	19.868	0.113	0.255	0.115
22	19.537	20.025	19.531	0.258	0.106	0.259	20.031	19.537	20.031	0.106	0.255	0.107
23	19.5	19.956	19.493	0.26	0.114	0.26	19.956	19.5	19.956	0.113	0.262	0.114
24	19.393	19.881	19.393	0.251	0.11	0.254	19.881	19.393	19.881	0.109	0.253	0.111
25	19.475	19.95	19.475	0.253	0.115	0.255	19.943	19.475	19.95	0.114	0.254	0.116
26	19.431	19.893	19.425	0.261	0.113	0.263	19.893	19.437	19.893	0.112	0.261	0.113
27	19.537	20.012	19.537	0.243	0.1	0.244	20.012	19.537	20.012	0.099	0.242	0.1
28	19.45	19.906	19.45	0.241	0.102	0.245	19.906	19.45	19.906	0.101	0.241	0.102
29	19.431	19.893	19.431	0.241	0.108	0.24	19.893	19.437	19.893	0.11	0.242	0.11
30	19.543	20	19.543	0.243	0.1	0.243	20	19.543	20	0.099	0.243	0.1
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.556	20.025	19.556	0.271	0.120	0.267	20.031	19.556	20.031	0.120	0.269	0.121
MIN	19.300	19.737	19.306	0.241	0.100	0.240	19.737	19.312	19.737	0.099	0.241	0.100
AVER	19.439	19.909	19.439	0.255	0.112	0.256	19.909	19.443	19.909	0.112	0.255	0.113
S	0.058	0.059	0.056	0.007	0.006	0.007	0.059	0.056	0.060	0.006	0.007	0.006
Ca	0.366	0.187	0.366				0.187	0.361	0.187			
Cp	4.911	4.773	5.091	11.805	21.632	11.978	4.769	5.056	4.721	21.613	11.779	21.066
CPK	3.112	3.882	3.229	11.805	21.632	11.978	3.875	3.229	3.837	21.613	11.779	21.066
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Combine						Combine					
Vin/Fin	132V/63Hz	115V/60Hz	90V/47Hz	132V/63Hz	115V/60Hz	90V/47Hz	90V/47Hz	115V/60Hz	137V/63Hz	90V/47Hz	115V/60Hz	137V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	29	30	31	32	33	34	35	36	37	38	39	40
1	19.406	19.831	19.406	0.29	0.1	0.288	19.837	19.406	19.837	0.098	0.288	0.098
2	19.55	19.981	19.55	0.305	0.098	0.303	19.981	19.543	19.981	0.096	0.304	0.1
3	19.287	19.781	19.293	0.301	0.101	0.299	19.737	19.293	19.737	0.099	0.299	0.101
4	19.412	19.887	19.412	0.295	0.104	0.292	19.887	19.418	19.887	0.102	0.293	0.102
5	19.443	19.925	19.443	0.293	0.087	0.291	19.925	19.45	19.925	0.085	0.292	0.086
6	19.456	19.95	19.468	0.298	0.103	0.292	19.95	19.468	19.956	0.101	0.294	0.104
7	19.45	19.95	19.45	0.297	0.101	0.296	19.95	19.456	19.943	0.097	0.295	0.098
8	19.362	19.843	19.362	0.296	0.106	0.294	19.843	19.362	19.837	0.103	0.295	0.104
9	19.4	19.906	19.393	0.291	0.103	0.288	19.906	19.393	19.906	0.103	0.289	0.104
10	19.431	19.912	19.431	0.293	0.093	0.29	19.912	19.431	19.912	0.09	0.291	0.092
11	19.437	19.937	19.443	0.284	0.095	0.283	19.937	19.443	19.931	0.092	0.283	0.094
12	19.356	19.843	19.362	0.293	0.082	0.29	19.843	19.362	19.843	0.082	0.29	0.084
13	19.412	19.881	19.418	0.299	0.098	0.296	19.881	19.418	19.887	0.095	0.298	0.097
14	19.412	19.887	19.418	0.294	0.094	0.292	19.881	19.412	19.887	0.093	0.292	0.095
15	19.431	19.925	19.437	0.292	0.104	0.292	19.925	19.437	19.925	0.101	0.29	0.102
16	19.368	19.875	19.375	0.294	0.09	0.294	19.875	19.375	19.875	0.088	0.294	0.089
17	19.468	19.943	19.468	0.303	0.1	0.3	19.943	19.475	19.943	0.097	0.3	0.099
18	19.4	19.875	19.406	0.311	0.104	0.308	19.875	19.406	19.868	0.104	0.307	0.105
19	19.387	19.85	19.387	0.303	0.095	0.301	19.85	19.393	19.856	0.093	0.301	0.093
20	19.456	19.943	19.462	0.296	0.106	0.295	19.95	19.462	19.943	0.105	0.295	0.107
21	19.393	19.862	19.4	0.292	0.096	0.291	19.862	19.393	19.868	0.093	0.291	0.095
22	19.531	20.031	19.537	0.297	0.088	0.296	20.031	19.543	20.031	0.086	0.294	0.089
23	19.481	19.956	19.481	0.299	0.097	0.298	19.956	19.487	19.956	0.095	0.296	0.099
24	19.387	19.881	19.387	0.289	0.096	0.288	19.881	19.387	19.881	0.091	0.287	0.093
25	19.462	19.95	19.468	0.292	0.1	0.292	19.95	19.468	19.943	0.098	0.291	0.098
26	19.412	19.893	19.425	0.301	0.096	0.299	19.893	19.425	19.893	0.094	0.298	0.094
27	19.525	20.012	19.531	0.284	0.083	0.28	20.012	19.531	20.012	0.081	0.28	0.082
28	19.437	19.906	19.437	0.278	0.09	0.278	19.906	19.437	19.906	0.088	0.279	0.088
29	19.431	19.893	19.431	0.28	0.094	0.28	19.893	19.431	19.893	0.095	0.279	0.095
30	19.531	19.993	19.531	0.281	0.087	0.281	20	19.537	19.993	0.086	0.28	0.087
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.550	20.031	19.550	0.311	0.106	0.308	20.031	19.543	20.031	0.105	0.307	0.107
MIN	19.287	19.737	19.293	0.278	0.082	0.278	19.737	19.293	19.737	0.081	0.279	0.082
AVER	19.430	19.909	19.434	0.294	0.096	0.292	19.909	19.435	19.909	0.094	0.292	0.096
S	0.057	0.060	0.057	0.008	0.007	0.007	0.060	0.057	0.059	0.007	0.007	0.007
Ca	0.376	0.187	0.372				0.187	0.371	0.186			
Cp	4.975	4.730	4.992	9.105	20.292	9.749	4.704	4.929	4.773	20.603	9.770	20.402
CPK	3.105	3.848	3.135	9.105	20.292	9.749	3.824	3.101	3.883	20.603	9.770	20.402
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Dynamic		Dynamic		Dynamic		Dynamic		load regulation						INPUT/OUTPUT		
Vin/Fin	90V/60Hz		100V/60Hz		240V/50Hz		264V/50Hz		264V/50Hz						264V/50Hz		
Load	0~4.5A		4.5~0A		0~4.5A		4.5~0A		4.51A		5A		5.5A		4.51A		
Item Content	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vpp-1	Vdc-2	Vpp-2	Vdc-3	Vpp-3	Irms	EFF	PFC
NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
1	19.85	19.362	19.462	19.843	19.850	19.356	19.431	19.850	19.412	0.249	19.362	0.274	19.312	0.301	0.399	86.899	0.958
2	20	19.475	19.481	19.993	19.987	19.587	19.581	19.993	19.556	0.263	19.506	0.288	19.456	0.315	0.402	87.005	0.958
3	19.756	19.231	19.237	19.750	19.768	19.250	19.256	19.750	19.318	0.261	19.262	0.286	19.212	0.310	0.399	86.682	0.957
4	19.912	19.456	19.443	19.906	19.918	19.468	19.368	19.906	19.437	0.256	19.381	0.279	19.331	0.304	0.400	86.932	0.958
5	19.937	19.375	19.406	19.925	19.943	19.387	19.443	19.931	19.462	0.254	19.406	0.277	19.362	0.302	0.401	86.768	0.959
6	19.968	19.506	19.400	19.956	19.975	19.425	19.537	19.968	19.493	0.259	19.437	0.283	19.400	0.307	0.402	86.628	0.959
7	19.962	19.381	19.487	19.962	19.962	19.500	19.406	19.950	19.475	0.256	19.412	0.282	19.368	0.308	0.402	86.676	0.958
8	19.856	19.306	19.356	19.856	19.862	19.368	19.318	19.850	19.375	0.257	19.325	0.281	19.275	0.307	0.400	86.519	0.959
9	19.918	19.337	19.343	19.912	19.912	19.406	19.437	19.918	19.406	0.251	19.350	0.275	19.306	0.300	0.401	86.612	0.958
10	19.931	19.368	19.387	19.925	19.943	19.481	19.450	19.931	19.450	0.254	19.393	0.277	19.337	0.304	0.400	86.681	0.960
11	19.95	19.487	19.381	19.943	19.950	19.406	19.487	19.950	19.456	0.246	19.400	0.273	19.350	0.295	0.401	86.653	0.959
12	19.862	19.387	19.343	19.862	19.862	19.312	19.325	19.856	19.375	0.254	19.318	0.279	19.268	0.303	0.399	86.758	0.959
13	19.9	19.475	19.412	19.906	19.906	19.400	19.443	19.912	19.443	0.261	19.381	0.286	19.331	0.308	0.400	86.934	0.957
14	19.906	19.368	19.356	19.900	19.906	19.362	19.431	19.893	19.431	0.255	19.375	0.281	19.318	0.303	0.400	86.742	0.959
15	19.931	19.4	19.481	19.925	19.943	19.481	19.487	19.925	19.443	0.253	19.387	0.277	19.337	0.302	0.400	86.655	0.959
16	19.893	19.393	19.406	19.881	19.900	19.400	19.393	19.887	19.387	0.255	19.331	0.279	19.281	0.305	0.399	86.612	0.960
17	19.956	19.5	19.468	19.950	19.968	19.506	19.437	19.962	19.493	0.261	19.431	0.288	19.381	0.316	0.402	86.555	0.959
18	19.9	19.45	19.450	19.887	19.906	19.437	19.425	19.887	19.431	0.273	19.375	0.296	19.325	0.320	0.400	86.704	0.959
19	19.868	19.425	19.425	19.862	19.875	19.406	19.443	19.868	19.400	0.260	19.343	0.288	19.300	0.312	0.400	86.632	0.958
20	19.95	19.475	19.456	19.956	19.962	19.500	19.500	19.950	19.462	0.256	19.406	0.282	19.362	0.308	0.401	86.586	0.959
21	19.881	19.325	19.337	19.875	19.887	19.381	19.356	19.875	19.412	0.254	19.362	0.281	19.312	0.304	0.400	86.784	0.957
22	20.037	19.475	19.587	20.037	20.037	19.581	19.600	20.043	19.550	0.257	19.493	0.283	19.450	0.306	0.403	86.735	0.958
23	19.962	19.456	19.462	19.968	19.981	19.481	19.468	19.975	19.506	0.258	19.450	0.285	19.400	0.310	0.402	86.588	0.960
24	19.887	19.412	19.425	19.887	19.893	19.406	19.437	19.887	19.406	0.252	19.350	0.277	19.300	0.299	0.400	86.793	0.956
25	19.968	19.5	19.518	19.950	19.962	19.512	19.500	19.962	19.481	0.252	19.431	0.279	19.375	0.303	0.401	86.783	0.958
26	19.912	19.468	19.450	19.912	19.925	19.387	19.393	19.918	19.450	0.261	19.393	0.288	19.350	0.311	0.401	86.614	0.959
27	20.031	19.556	19.487	20.018	20.031	19.575	19.556	20.025	19.550	0.244	19.500	0.268	19.456	0.295	0.403	86.696	0.958
28	19.925	19.412	19.443	19.918	19.918	19.400	19.418	19.918	19.450	0.241	19.393	0.264	19.343	0.289	0.400	86.838	0.957
29	19.912	19.45	19.368	19.900	19.912	19.450	19.456	19.900	19.437	0.243	19.381	0.265	19.331	0.290	0.400	86.838	0.957
30	20.012	19.562	19.487	20.012	20.018	19.487	19.493	20.006	19.543	0.242	19.487	0.267	19.437	0.289	0.404	86.584	0.956
UNIT	V	V	V	V	V	V	V	V	V	V	V	V	V	V	A	%	
UCL	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	0.50	20.6	0.50	20.6	0.50	0.7		
LCL	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9		18.9		18.9			83	0.8
MAX	20.037	19.562	19.587	20.037	20.037	19.587	19.600	20.043	19.556	0.273	19.506	0.296	19.456	0.320	0.404	87.005	0.960
MIN	19.756	19.231	19.237	19.750	19.768	19.250	19.256	19.750	19.318	0.241	19.262	0.264	19.212	0.289	0.399	86.519	0.956
AVER	19.924	19.426	19.425	19.919	19.929	19.437	19.443	19.922	19.450	0.255	19.394	0.280	19.346	0.304	0.401	86.716	0.958
S	0.058	0.074	0.068	0.058	0.057	0.077	0.075	0.060	0.056	0.007	0.056	0.007	0.057	0.008	0.001	0.123	0.001
Ca	0.205	0.381	0.383	0.199	0.210	0.369	0.362	0.202	0.353		0.419		0.476				
Cp	4.860	3.809	4.163	4.853	4.967	3.660	3.763	4.758	5.039	11.870	5.021	9.962	4.931	8.666	77.646	10.103	48.818
CPK	3.863	2.356	2.570	3.887	3.922	2.310	2.402	3.798	3.259	11.870	2.918	9.962	2.585	8.666	77.646	10.103	48.818
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	REF

Item	INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			HOLD-UP	POWER LOSS
Vin/Fin	230V/50Hz			180V/50Hz			137V/50Hz			115V/60Hz			90V/60Hz			90V/60Hz	240V/50Hz
Load	4.51A			4.51A			4.51A			4.51A			4.51A			4.51A	0A
Item Content	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Hold-up time	Pin
NO.	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74*
1	0.449	86.821	0.977	0.619	87.237	0.902	0.753	87.935	0.967	0.877	87.427	0.996	1.149	85.795	0.991	27.032	0.708
2	0.452	86.832	0.978	0.585	86.670	0.968	0.757	87.886	0.969	0.884	87.394	0.996	1.163	85.764	0.987	27.775	0.672
3	0.449	86.612	0.976	0.591	86.518	0.948	0.752	87.823	0.965	0.874	87.155	0.997	1.147	85.672	0.990	28.346	0.678
4	0.450	86.692	0.980	0.622	86.865	0.904	0.756	87.769	0.967	0.879	87.310	0.997	1.151	85.643	0.993	26.593	0.642
5	0.451	86.671	0.978	0.612	86.931	0.919	0.757	87.802	0.966	0.880	87.368	0.997	1.156	85.664	0.990	27.578	0.660
6	0.452	86.654	0.979	0.595	86.739	0.950	0.759	87.700	0.967	0.883	87.190	0.997	1.160	85.575	0.990	27.895	0.666
7	0.452	86.459	0.979	0.611	86.642	0.924	0.757	87.656	0.969	0.881	87.128	0.998	1.155	85.602	0.992	27.415	0.666
8	0.449	86.519	0.981	0.600	86.586	0.937	0.750	87.635	0.973	0.876	87.150	0.999	1.150	85.522	0.992	28.518	0.666
9	0.451	86.390	0.979	0.569	86.334	0.993	0.757	87.604	0.966	0.880	87.119	0.997	1.157	85.520	0.989	27.272	0.642
10	0.450	86.585	0.981	0.572	86.349	0.988	0.755	87.706	0.970	0.884	87.170	0.993	1.173	85.454	0.977	27.282	0.666
11	0.451	86.682	0.979	0.626	86.843	0.899	0.758	87.677	0.966	0.881	87.155	0.998	1.157	85.530	0.991	27.271	0.666
12	0.448	86.614	0.981	0.567	86.346	0.994	0.754	87.635	0.968	0.877	87.367	0.997	1.150	85.646	0.991	27.117	0.648
13	0.450	86.693	0.979	0.608	87.117	0.923	0.754	87.577	0.970	0.880	87.233	0.996	1.159	85.576	0.987	27.181	0.660
14	0.450	86.770	0.979	0.569	86.446	0.993	0.758	87.674	0.965	0.878	87.213	0.998	1.151	85.688	0.992	26.898	0.660
15	0.451	86.483	0.979	0.598	86.492	0.945	0.758	87.580	0.966	0.881	87.093	0.997	1.159	85.552	0.988	26.694	0.672
16	0.449	86.749	0.979	0.588	86.519	0.957	0.755	87.755	0.967	0.878	87.260	0.996	1.154	85.606	0.989	26.898	0.660
17	0.452	86.317	0.982	0.624	86.289	0.909	0.760	87.673	0.966	0.881	87.263	0.998	1.157	85.570	0.991	27.436	0.672
18	0.450	86.797	0.979	0.568	86.532	0.993	0.755	87.741	0.967	0.879	87.236	0.996	1.157	85.731	0.988	26.818	0.654
19	0.450	86.478	0.979	0.619	86.958	0.905	0.756	87.628	0.966	0.877	87.197	0.998	1.148	85.632	0.993	27.164	0.660
20	0.451	86.530	0.981	0.597	86.653	0.944	0.758	87.614	0.968	0.883	87.097	0.996	1.160	85.456	0.989	27.612	0.660
21	0.450	86.688	0.978	0.605	86.708	0.930	0.756	87.772	0.966	0.877	87.210	0.998	1.150	85.664	0.992	27.087	0.660
22	0.453	86.630	0.980	0.595	86.754	0.952	0.759	87.765	0.969	0.884	87.259	0.998	1.159	85.634	0.992	26.453	0.642
23	0.453	86.435	0.979	0.584	86.407	0.971	0.761	87.680	0.965	0.883	87.205	0.998	1.159	85.483	0.992	26.823	0.660
24	0.449	86.726	0.979	0.611	86.925	0.918	0.754	87.756	0.968	0.880	87.406	0.994	1.156	85.574	0.988	26.878	0.666
25	0.451	86.781	0.979	0.617	86.753	0.913	0.757	87.724	0.968	0.882	87.267	0.996	1.160	85.546	0.988	26.827	0.660
26	0.451	86.624	0.979	0.615	86.853	0.915	0.755	87.599	0.971	0.880	87.093	0.998	1.156	85.476	0.991	27.461	0.666
27	0.453	86.857	0.978	0.613	86.849	0.923	0.761	87.679	0.968	0.888	87.113	0.994	1.166	85.568	0.987	26.688	0.624
28	0.450	86.800	0.978	0.606	87.068	0.925	0.757	87.951	0.965	0.877	87.376	0.998	0.630	85.174	0.994	27.531	0.666
29	0.450	86.771	0.977	0.568	86.541	0.993	0.754	87.927	0.968	0.876	87.402	0.998	0.660	85.065	0.989	27.752	0.654
30	0.454	86.499	0.978	0.600	86.441	0.946	0.764	87.564	0.964	0.884	87.244	0.998	0.666	85.323	0.987	26.635	0.672
UNIT	A	%		A	%		A	%		A	%		A	%		mS	W
UCL	0.7			1.5			1.5			1.5			1.5				1.0
LCL		83	0.9		83	0.8		83	0.9		83	0.9		83	0.9	10	
MAX	0.454	86.857	0.982	0.626	87.237	0.994	0.764	87.951	0.973	0.888	87.427	0.999	1.173	85.795	0.994	28.518	0.708
MIN	0.448	86.317	0.976	0.567	86.289	0.899	0.750	87.564	0.964	0.874	87.093	0.993	0.630	85.065	0.977	26.453	0.624
AVER	0.451	86.639	0.979	0.598	86.679	0.943	0.757	87.716	0.967	0.880	87.237	0.997	1.106	85.557	0.990	27.231	0.662
S	0.001	0.143	0.001	0.019	0.250	0.031	0.003	0.108	0.002	0.003	0.104	0.001	0.154	0.155	0.003	0.501	0.014
Ca																	
Cp	57.629	8.469	20.055	16.029	4.913	1.512	85.898	14.566	11.190	65.856	13.620	23.100	0.853	5.504	9.540	11.467	7.909
CPK	57.629	8.469	20.055	16.029	4.913	1.512	85.898	14.566	11.190	65.856	13.620	23.100	0.853	5.504	9.540	11.467	7.909
RESULT	OK	OK	OK	OK	OK	REF	OK	OK	OK	OK	OK	OK	FAIL	OK	OK	OK	OK

COMMENT : ITEM74* DATAS TEST WITH WT-110 (TEST TIME 1 MINUTE)



lite-On Electronics (DG) Co. Ltd.
光寶電子(東莞)有限公司

CPK REPORT (mixing source-6)

CUSTOMER : DELL

PROJECT NAME : COMANECI

DELL P/N : 6G356

MODEL PA-1900-05D

PREPARED BY : 陸金榮 1.18'02

CHECKED BY : 王東 4/26'02

APPROVED BY : Peter 8/6'02

Item	Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on		Turn-on	
Vin/Fin	90V/47Hz		90V/60Hz		115V/60Hz		132V/63Hz		180V/47Hz		240V/50Hz		240V/50Hz		264V/63Hz	
Load	4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A		4.51A	
Item Content	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton-ms	Inrush	Ton rise time-ms	Inrush	Ton-ms	Inrush
NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	462.455	24.187	11.662	8.531	376.93	36.281	376.58	13.718	373.74	36.531	361.74	42	10.918	40.906	360.947	41.468
2	449.596	24.625	13.143	8.5	356.94	38.906	356.1	13.375	355.44	34.937	351.09	46.437	10.415	40.531	349.52	41.781
3	570.109	24.781	14.822	8.656	358.06	37.843	357.84	13.843	356.38	37.531	353.11	41.843	11.425	41.687	352.256	41.187
4	578.789	24.75	12.587	4.906	384.36	39.531	382.52	13.937	379.52	35.843	360.56	40.468	10.615	40.687	359.597	41.343
5	577.241	24.625	11.788	5	365.24	36.937	364.89	13.375	364.34	37.75	360.54	41	10.908	40.875	359.735	41.093
6	567.466	24.187	11.972	8.281	370.34	36.812	369.32	13.5	367.27	38.281	359.19	42.218	10.327	41.375	358.907	42.375
7	547.761	24.875	11.308	8.187	341.95	40.625	342.03	13.312	341.09	35.906	338.1	42.5	10.872	42.125	337.765	43.218
8	454.14	24.625	14.434	5.031	359.22	38.593	359.81	13.718	359.27	38.906	354.42	41.093	11.344	40.906	353.608	12.593
9	589.658	26.343	10.519	8.437	388.01	35.781	383.93	13.75	383.49	35.25	369.54	41.312	10.433	5.562	368.414	45.625
10	557.922	26.281	12.018	8.406	348.41	38.593	347.98	13.656	347.87	38.562	343.47	41.5	11.277	41.906	342.904	41.968
11	663.639	26.375	11.179	4.875	369.41	40.031	369.17	14	367.91	37.875	364.45	39.812	10.834	39.656	363.426	39.437
12	591.416	24.968	14.958	8.437	371.75	39.156	371.26	13.656	371.23	35.281	366.27	41.187	10.684	40.781	365.461	43.062
13	578.335	25.875	15.218	4.843	360.75	38.25	360.59	13.468	360.63	34.812	356.64	41.312	11.21	39.625	355.898	41.75
14	576.843	27.375	13.114	8.687	359.47	37.843	358.91	13.937	358.19	35.437	354.48	45.625	11.053	39.718	353.244	41.187
15	507.075	23.531	10.591	8.125	363.38	36.812	362.43	13.218	361.09	35.781	357.55	41.593	10.391	41.25	357.202	40.125
16	556.633	25.718	11.466	4.937	350.84	39.75	350.48	13.468	349.51	6	345.44	42.5	11.21	41.75	345.492	41.562
17	578.455	27.375	11.933	4.843	369.23	37.843	370.05	13.375	368.39	35.5	360.56	41.5	10.257	41	358.685	12.218
18	578.151	26.281	11.074	4.937	366.85	36.843	370.26	13.625	369.64	35.375	360.99	45.906	10.612	40	360.383	41.468
19	556.962	23.593	11.371	5	361.25	37.312	361.34	13.5	360.63	35.125	355.01	41.531	11.117	40	354.167	40.781
20	452.341	23.906	13.206	5.031	358.63	37.718	358.86	13.781	357.45	35.968	355.13	38.781	10.673	38.687	353.165	40
21	588.589	27.062	11.192	8.343	373.85	37.312	373.89	13.625	372.85	36.75	367.78	42.656	11.218	42.312	366.967	43.281
22	577.453	26.406	11.413	8.437	364.28	41.937	365.19	13.687	363.67	36.906	359.25	44.062	10.823	43.312	357.412	44.968
23	560.336	27.125	13.726	8.656	349.68	38.125	349.44	13.906	348.96	36.093	345	38.656	10.926	38.687	343.405	41.437
24	481.19	24	14.423	8.531	406.05	41.156	403.72	13.843	399.94	35	375.84	41.281	11.218	41.718	376.258	41.25
25	568.357	30.21	11.637	5	394.86	40.281	391.7	13.656	386.74	36.312	357.4	42.437	10.897	42.031	354.787	40.781
26	590.182	25.781	11.412	8.218	376.92	38.125	377.2	13.5	376.76	37.968	367.11	40.375	10.595	40.281	366.532	40.218
27	580.706	23.968	11.242	5.062	368.19	36.75	367.72	13.843	367.18	35.093	362.92	42.125	10.792	41.625	361.815	41.25
28	566.647	25.781	12.781	5	358.16	40.281	357.82	14.031	356.75	37.968	353.69	42.375	10.34	41.906	352.656	40.5
29	567.453	30.21	14.149	9.164	386.11	42.679	363.96	14.789	361.53	40.304	350.61	43.179	10.819	42.773	349.652	40.835
30	589.802	29.023	13.888	8.757	391.16	42.773	376.41	14.257	374.08	35.304	370.45	42.929	11.275	42.742	368.572	41.304
UNIT	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A	ms	A
UCL	4000	50	30	50	4000	50	4000	50	4000	100	4000	100	30	100	4000	100
LCL																
MAX	663.639	30.210	15.218	9.164	406.047	42.773	403.715	14.789	399.938	40.304	375.843	46.437	11.425	43.312	376.258	45.625
MIN	449.596	23.531	10.519	4.843	341.945	35.781	342.031	13.218	341.093	6.000	338.101	38.656	10.257	5.562	337.765	12.218
AVER	555.523	25.795	12.474	6.961	368.341	38.696	366.712	13.712	365.384	35.478	357.944	42.006	10.849	39.880	356.961	39.669
S	49.589	1.784	1.406	1.791	14.745	1.868	13.146	0.314	12.443	5.744	8.485	1.782	0.337	6.583	8.512	7.530
Ca																
Cp	23.154	4.523	4.155	8.012	82.097	2.017	92.128	38.504	97.371	3.744	143.07	10.848	18.933	3.044	142.671	2.671
CPK	23.154	4.523	4.155	8.012	82.097	2.017	92.128	38.504	97.371	3.744	143.07	10.848	18.933	3.044	142.671	2.671
RESULT	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF	OK	REF

Item	Combine						Combine					
Vin/Fin	264V/63Hz	240V/50Hz	180V/47Hz	264V/63Hz	240V/50Hz	180V/47Hz	180V/47Hz	240V/60Hz	265V/63Hz	180V/47Hz	240V/60Hz	265V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	17	18	19	20	21	22	23	24	25	26	27	28
1	19.418	19.9	19.425	0.259	0.103	0.257	19.893	19.418	19.893	0.103	0.258	0.104
2	19.5	19.987	19.493	0.252	0.104	0.254	19.987	19.493	19.987	0.103	0.25	0.105
3	19.412	19.875	19.425	0.252	0.098	0.251	19.875	19.418	19.875	0.099	0.252	0.099
4	19.393	19.868	19.393	0.253	0.102	0.254	19.868	19.393	19.868	0.101	0.254	0.102
5	19.456	19.906	19.45	0.264	0.103	0.264	19.906	19.45	19.906	0.103	0.265	0.103
6	19.481	19.968	19.481	0.268	0.105	0.267	19.962	19.481	19.968	0.106	0.268	0.106
7	19.537	20.025	19.55	0.258	0.104	0.256	20.025	19.55	20.025	0.104	0.258	0.105
8	19.35	19.818	19.356	0.263	0.103	0.258	19.818	19.356	19.818	0.104	0.261	0.104
9	19.45	19.925	19.45	0.255	0.099	0.251	19.925	19.456	19.925	0.1	0.253	0.1
10	19.406	19.9	19.406	0.256	0.102	0.252	19.9	19.406	19.906	0.101	0.256	0.103
11	19.287	19.768	19.281	0.26	0.097	0.263	19.775	19.287	19.768	0.097	0.26	0.097
12	19.493	19.968	19.5	0.255	0.099	0.255	19.962	19.506	19.968	0.099	0.257	0.099
13	19.468	19.931	19.475	0.245	0.101	0.246	19.931	19.481	19.931	0.101	0.243	0.102
14	19.462	19.893	19.462	0.249	0.098	0.251	19.893	19.462	19.9	0.097	0.25	0.099
15	19.431	19.925	19.437	0.251	0.097	0.249	19.925	19.443	19.925	0.098	0.249	0.098
16	19.412	19.893	19.418	0.255	0.104	0.255	19.887	19.418	19.887	0.104	0.256	0.105
17	19.456	19.931	19.462	0.242	0.09	0.246	19.925	19.468	19.925	0.089	0.243	0.091
18	19.45	19.893	19.456	0.252	0.095	0.251	19.887	19.456	19.887	0.095	0.251	0.095
19	19.481	19.956	19.487	0.256	0.106	0.255	19.956	19.493	19.956	0.107	0.256	0.107
20	19.4	19.9	19.393	0.262	0.108	0.268	19.9	19.4	19.9	0.106	0.262	0.108
21	19.431	19.918	19.425	0.255	0.104	0.258	19.918	19.425	19.918	0.104	0.254	0.105
22	19.431	19.9	19.431	0.266	0.104	0.268	19.906	19.431	19.9	0.103	0.263	0.104
23	19.5	19.968	19.5	0.263	0.104	0.265	19.975	19.5	19.975	0.103	0.26	0.105
24	19.418	19.918	19.418	0.252	0.108	0.25	19.925	19.425	19.918	0.109	0.252	0.109
25	19.475	19.962	19.481	0.257	0.105	0.254	19.962	19.487	19.962	0.106	0.256	0.106
26	19.512	19.975	19.518	0.262	0.11	0.259	19.975	19.525	19.975	0.111	0.26	0.111
27	19.618	20.05	19.625	0.26	0.1	0.255	20.05	19.625	20.05	0.1	0.258	0.1
28	19.443	19.9	19.443	0.252	0.102	0.26	19.9	19.443	19.9	0.1	0.251	0.102
29	19.493	19.975	19.5	0.238	0.094	0.234	19.975	19.5	19.975	0.094	0.235	0.095
30	19.35	19.85	19.356	0.224	0.094	0.232	19.85	19.362	19.85	0.093	0.225	0.095
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.618	20.050	19.625	0.268	0.110	0.268	20.050	19.625	20.050	0.111	0.268	0.111
MIN	19.287	19.768	19.281	0.224	0.090	0.232	19.775	19.287	19.768	0.089	0.225	0.091
AVER	19.447	19.922	19.450	0.255	0.101	0.255	19.921	19.452	19.921	0.101	0.254	0.102
S	0.062	0.058	0.064	0.009	0.005	0.008	0.057	0.064	0.058	0.005	0.009	0.005
Ca	0.356	0.202	0.353				0.201	0.351	0.202			
Cp	4.569	4.920	4.442	9.205	28.888	9.717	4.962	4.453	4.890	27.592	9.378	28.557
CPK	2.941	3.927	2.873	9.205	28.888	9.717	3.963	2.891	3.904	27.592	9.378	28.557
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Combine						Combine					
Vin/Fin	132V/63Hz	115V/60Hz	90V/47Hz	132V/63Hz	115V/60Hz	90V/47Hz	90V/47Hz	115V/60Hz	137V/63Hz	90V/47Hz	115V/60Hz	137V/63Hz
Load	4.51A	0A	4.51A	4.51A	0A	4.51A	0A	4.51A	0A	0A	4.51A	0A
Item Content	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3	Vdc-1	Vdc-2	Vdc-3	Vpp-1	Vpp-2	Vpp-3
NO.	29	30	31	32	33	34	35	36	37	38	39	40
1	19.412	19.893	19.412	0.297	0.093	0.296	19.893	19.418	19.893	0.091	0.296	0.092
2	19.487	19.987	19.487	0.291	0.093	0.292	19.987	19.487	19.987	0.091	0.29	0.092
3	19.406	19.875	19.412	0.29	0.09	0.29	19.875	19.412	19.875	0.088	0.289	0.089
4	19.387	19.868	19.387	0.293	0.094	0.292	19.868	19.393	19.868	0.092	0.292	0.093
5	19.443	19.906	19.443	0.302	0.093	0.3	19.906	19.443	19.906	0.092	0.301	0.094
6	19.468	19.968	19.481	0.309	0.095	0.307	19.968	19.481	19.968	0.094	0.307	0.096
7	19.537	20.025	19.55	0.297	0.094	0.295	20.025	19.543	20.025	0.092	0.296	0.093
8	19.343	19.818	19.35	0.3	0.092	0.297	19.818	19.35	19.818	0.09	0.298	0.092
9	19.443	19.918	19.45	0.291	0.09	0.29	19.925	19.45	19.925	0.09	0.29	0.091
10	19.393	19.9	19.387	0.294	0.09	0.291	19.9	19.387	19.9	0.09	0.292	0.092
11	19.275	19.768	19.275	0.299	0.088	0.297	19.768	19.281	19.768	0.087	0.297	0.088
12	19.493	19.968	19.493	0.293	0.088	0.292	19.968	19.493	19.968	0.088	0.292	0.089
13	19.475	19.931	19.475	0.282	0.088	0.28	19.931	19.481	19.931	0.087	0.281	0.088
14	19.456	19.893	19.45	0.287	0.088	0.285	19.893	19.456	19.893	0.086	0.285	0.087
15	19.431	19.925	19.437	0.288	0.088	0.285	19.925	19.437	19.925	0.088	0.285	0.09
16	19.412	19.887	19.412	0.292	0.095	0.29	19.887	19.412	19.887	0.093	0.29	0.094
17	19.456	19.925	19.462	0.279	0.083	0.279	19.925	19.462	19.925	0.081	0.278	0.082
18	19.437	19.893	19.443	0.288	0.087	0.284	19.887	19.443	19.887	0.085	0.285	0.087
19	19.481	19.956	19.487	0.297	0.092	0.295	19.956	19.493	19.956	0.092	0.298	0.093
20	19.387	19.893	19.4	0.302	0.097	0.303	19.9	19.4	19.9	0.095	0.303	0.095
21	19.418	19.918	19.425	0.293	0.093	0.293	19.918	19.431	19.918	0.091	0.293	0.093
22	19.418	19.9	19.425	0.304	0.095	0.303	19.9	19.425	19.906	0.093	0.304	0.093
23	19.487	19.968	19.493	0.301	0.094	0.3	19.975	19.5	19.968	0.092	0.299	0.093
24	19.412	19.925	19.425	0.291	0.093	0.29	19.918	19.425	19.925	0.093	0.29	0.096
25	19.475	19.962	19.481	0.296	0.093	0.296	19.956	19.487	19.956	0.091	0.295	0.093
26	19.512	19.975	19.518	0.302	0.1	0.299	19.975	19.518	19.975	0.099	0.3	0.099
27	19.606	20.05	19.606	0.297	0.09	0.293	20.05	19.612	20.05	0.088	0.294	0.09
28	19.437	19.9	19.437	0.291	0.09	0.29	19.893	19.437	19.893	0.089	0.29	0.09
29	19.493	19.975	19.5	0.271	0.076	0.272	19.975	19.5	19.975	0.075	0.271	0.077
30	19.35	19.85	19.362	0.262	0.077	0.26	19.85	19.362	19.85	0.075	0.261	0.075
UNIT	V	V	V	V	V	V	V	V	V	V	V	V
UCL	20.6	20.6	20.6	0.50	0.50	0.50	20.6	20.6	20.6	0.50	0.50	0.50
LCL	18.9	18.9	18.9				18.9	18.9	18.9			
MAX	19.606	20.050	19.606	0.309	0.100	0.307	20.050	19.612	20.050	0.099	0.307	0.099
MIN	19.275	19.768	19.275	0.262	0.076	0.260	19.768	19.281	19.768	0.075	0.261	0.075
AVER	19.441	19.921	19.446	0.293	0.091	0.291	19.921	19.447	19.921	0.089	0.291	0.091
S	0.063	0.058	0.063	0.010	0.005	0.010	0.058	0.063	0.058	0.005	0.010	0.005
Ca	0.364	0.201	0.358				0.201	0.356	0.201			
Cp	4.505	4.895	4.491	7.147	26.569	7.285	4.879	4.503	4.902	26.677	7.191	26.532
CPK	2.867	3.912	2.882	7.147	26.569	7.285	3.901	2.899	3.918	26.677	7.191	26.532
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Item	Dynamic		Dynamic		Dynamic		Dynamic		load regulation						INPUT/OUTPUT		
Vin/Fin	90V/60Hz		100V/60Hz		240V/50Hz		264V/50Hz		264V/50Hz						264V/50Hz		
Load	0~4.5A		4.5~0A		0~4.5A		4.5~0A		4.51A		5A		5.5A		4.51A		
Item Content	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vdc-2	Vdc-1	Vpp-1	Vdc-2	Vpp-2	Vdc-3	Vpp-3	Irms	EFF	PFC
NO.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
1	19.906	19.45	19.362	19.900	19.912	19.381	19.443	19.900	19.431	0.258	19.381	0.282	19.331	0.309	0.399	86.903	0.960
2	19.993	19.425	19.443	19.993	20.006	19.431	19.431	19.993	19.500	0.250	19.456	0.276	19.418	0.299	0.402	86.608	0.959
3	19.887	19.362	19.462	19.900	19.893	19.431	19.418	19.900	19.431	0.253	19.381	0.276	19.331	0.300	0.401	86.675	0.957
4	19.881	19.431	19.450	19.881	19.881	19.431	19.437	19.881	19.393	0.252	19.343	0.278	19.300	0.303	0.401	86.536	0.957
5	19.925	19.387	19.387	19.912	19.925	19.450	19.450	19.918	19.456	0.262	19.406	0.291	19.362	0.312	0.400	86.949	0.957
6	19.981	19.531	19.437	19.981	19.981	19.475	19.468	19.987	19.500	0.267	19.443	0.292	19.393	0.319	0.401	86.827	0.959
7	20.037	19.512	19.600	20.031	20.043	19.575	19.500	20.037	19.562	0.257	19.506	0.282	19.456	0.308	0.402	86.887	0.960
8	19.825	19.362	19.281	19.825	19.831	19.337	19.375	19.831	19.362	0.258	19.306	0.284	19.256	0.310	0.399	86.713	0.958
9	19.937	19.387	19.456	19.931	19.943	19.456	19.400	19.937	19.462	0.253	19.406	0.278	19.350	0.307	0.400	86.796	0.960
10	19.912	19.425	19.300	19.906	19.925	19.362	19.375	19.906	19.381	0.255	19.362	0.279	19.318	0.301	0.401	86.780	0.956
11	19.781	19.312	19.306	19.781	19.787	19.225	19.231	19.781	19.293	0.261	19.237	0.284	19.193	0.309	0.397	86.834	0.959
12	19.981	19.537	19.431	19.975	19.987	19.537	19.512	19.981	19.512	0.254	19.456	0.279	19.400	0.300	0.402	86.530	0.960
13	19.943	19.412	19.418	19.937	19.950	19.500	19.537	19.943	19.500	0.243	19.450	0.267	19.393	0.289	0.403	86.613	0.957
14	19.906	19.393	19.481	19.900	19.906	19.450	19.418	19.906	19.462	0.248	19.418	0.273	19.362	0.297	0.402	86.631	0.957
15	19.937	19.443	19.368	19.937	19.950	19.475	19.387	19.943	19.456	0.250	19.393	0.277	19.350	0.295	0.401	86.873	0.956
16	19.906	19.375	19.437	19.893	19.912	19.356	19.431	19.900	19.431	0.254	19.381	0.279	19.331	0.305	0.399	86.797	0.960
17	19.937	19.518	19.506	19.937	19.943	19.500	19.443	19.931	19.468	0.241	19.412	0.264	19.368	0.287	0.400	87.005	0.958
18	19.912	19.368	19.393	19.900	19.918	19.437	19.418	19.912	19.462	0.252	19.412	0.274	19.362	0.301	0.400	87.084	0.957
19	19.975	19.443	19.443	19.968	19.981	19.437	19.531	19.975	19.506	0.254	19.450	0.279	19.406	0.306	0.401	86.969	0.959
20	19.912	19.437	19.425	19.906	19.906	19.450	19.450	19.912	19.412	0.262	19.350	0.285	19.306	0.313	0.402	86.175	0.960
21	19.931	19.462	19.375	19.925	19.931	19.450	19.387	19.925	19.437	0.253	19.375	0.277	19.325	0.302	0.402	86.550	0.955
22	19.925	19.468	19.362	19.906	19.912	19.381	19.475	19.912	19.443	0.263	19.381	0.290	19.331	0.315	0.400	86.616	0.959
23	19.981	19.418	19.450	19.981	19.987	19.537	19.531	19.981	19.512	0.261	19.450	0.285	19.393	0.311	0.403	86.515	0.958
24	19.931	19.356	19.362	19.931	19.937	19.387	19.381	19.937	19.443	0.251	19.381	0.278	19.337	0.300	0.402	86.359	0.959
25	19.975	19.537	19.418	19.962	19.981	19.518	19.525	19.981	19.500	0.255	19.443	0.280	19.387	0.305	0.402	86.801	0.957
26	19.993	19.531	19.462	19.987	19.987	19.562	19.487	19.987	19.531	0.260	19.475	0.287	19.425	0.312	0.402	86.739	0.959
27	20.062	19.618	19.625	20.062	20.075	19.606	19.575	20.075	19.631	0.257	19.575	0.283	19.531	0.305	0.403	87.027	0.959
28	19.912	19.487	19.493	19.906	19.912	19.481	19.487	19.912	19.450	0.251	19.400	0.277	19.350	0.301	0.402	86.387	0.958
29	19.987	19.443	19.500	19.987	19.993	19.456	19.543	19.993	19.506	0.236	19.456	0.258	19.412	0.282	0.402	86.471	0.957
30	19.868	19.381	19.393	19.862	19.862	19.400	19.318	19.875	19.368	0.227	19.318	0.248	19.268	0.271	0.401	86.202	0.956
UNIT	V	V	V	V	V	V	V	V	V	V	V	V	V	V	A	%	
UCL	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.6	0.50	20.6	0.50	20.6	0.50	0.7		
LCL	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9		18.9		18.9			83	0.8
MAX	20.062	19.618	19.625	20.062	20.075	19.606	19.575	20.075	19.631	0.267	19.575	0.292	19.531	0.319	0.403	87.084	0.960
MIN	19.781	19.312	19.281	19.781	19.787	19.225	19.231	19.781	19.293	0.227	19.237	0.248	19.193	0.271	0.397	86.175	0.955
AVER	19.935	19.440	19.428	19.930	19.939	19.449	19.445	19.935	19.460	0.253	19.407	0.278	19.358	0.302	0.401	86.695	0.958
S	0.058	0.069	0.076	0.057	0.059	0.078	0.073	0.058	0.065	0.008	0.064	0.009	0.064	0.010	0.001	0.234	0.001
Ca	0.217	0.364	0.379	0.212	0.222	0.354	0.358	0.218	0.341		0.404		0.461				
Cp	4.925	4.077	3.722	4.929	4.792	3.628	3.864	4.846	4.341	9.934	4.419	7.977	4.455	6.503	71.792	5.261	36.426
CPK	3.855	2.592	2.310	3.885	3.729	2.344	2.480	3.791	2.860	9.934	2.635	7.977	2.401	6.503	71.792	5.261	36.426
RESULT	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	REF

Item	INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			INPUT/OUTPUT			HOLD-UP	POWER LOSS
Vin/Fin	230V/50Hz			180V/50Hz			137V/50Hz			115V/60Hz			90V/60Hz			90V/60Hz	240V/50Hz
Load	4.51A			4.51A			4.51A			4.51A			4.51A			4.51A	0A
Item Content	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Irms	EFF	PFC	Hold-up time	Pin
NO.	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74*
1	0.449	86.828	0.980	0.567	86.587	0.994	0.757	87.789	0.966	0.877	87.341	0.998	1.148	85.743	0.994	27.012	0.732
2	0.453	86.665	0.978	0.619	86.721	0.913	0.763	87.491	0.965	0.886	86.975	0.997	1.164	85.546	0.989	27.262	0.726
3	0.451	86.541	0.978	0.592	86.627	0.951	0.759	87.605	0.964	0.880	87.067	0.997	1.155	85.576	0.990	26.607	0.744
4	0.450	86.403	0.981	0.606	86.507	0.930	0.757	87.396	0.967	0.879	87.039	0.998	1.150	85.481	0.994	27.480	0.72
5	0.449	87.084	0.979	0.585	86.881	0.961	0.756	87.905	0.966	0.877	87.434	0.998	1.152	85.953	0.991	26.837	0.702
6	0.451	86.808	0.979	0.588	86.675	0.961	0.758	87.788	0.968	0.881	87.306	0.998	1.156	85.700	0.991	26.892	0.696
7	0.452	86.715	0.981	0.604	86.707	0.938	0.762	87.676	0.967	0.887	87.166	0.995	1.170	85.528	0.985	26.996	0.684
8	0.449	86.626	0.978	0.566	86.359	0.995	0.756	87.463	0.965	0.875	87.066	0.999	1.144	85.566	0.996	26.715	0.708
9	0.450	86.738	0.979	0.569	86.444	0.994	0.754	87.745	0.971	0.880	87.216	0.998	1.159	85.616	0.988	27.418	0.702
10	0.450	86.675	0.979	0.568	86.381	0.994	0.757	87.625	0.967	0.880	87.089	0.997	1.153	85.605	0.991	26.725	0.702
11	0.447	86.777	0.979	0.598	86.760	0.934	0.750	87.745	0.968	0.872	87.162	0.999	1.142	85.635	0.993	27.721	0.696
12	0.453	86.515	0.980	0.597	86.473	0.950	0.761	87.425	0.967	0.887	86.940	0.996	1.166	85.271	0.988	26.961	0.678
13	0.453	86.317	0.979	0.586	86.288	0.969	0.763	87.348	0.965	0.886	86.940	0.997	1.162	85.164	0.991	26.674	0.684
14	0.452	86.498	0.978	0.610	86.870	0.923	0.757	87.376	0.970	0.881	87.021	0.999	1.155	85.466	0.993	26.772	0.69
15	0.450	86.710	0.981	0.568	86.642	0.994	0.760	87.726	0.963	0.878	87.317	0.999	1.150	85.805	0.993	26.878	0.702
16	0.449	86.819	0.980	0.590	86.826	0.953	0.756	87.760	0.968	0.879	87.158	0.998	1.152	85.642	0.992	27.030	0.702
17	0.450	86.928	0.979	0.616	87.227	0.910	0.755	87.899	0.968	0.880	87.341	0.997	1.156	85.695	0.990	27.023	0.69
18	0.450	86.815	0.980	0.593	86.835	0.950	0.754	87.843	0.969	0.879	87.356	0.998	1.154	85.758	0.991	27.000	0.702
19	0.451	86.834	0.979	0.570	86.521	0.993	0.761	87.679	0.965	0.882	87.159	0.998	1.156	85.660	0.992	26.949	0.678
20	0.453	86.052	0.978	0.762	86.848	0.910	0.755	87.899	0.968	0.880	87.341	0.997	1.156	85.695	0.990	27.023	0.702
21	0.451	86.350	0.980	0.600	86.493	0.940	0.757	87.360	0.968	0.883	86.939	0.995	1.164	85.324	0.985	27.138	0.726
22	0.450	86.587	0.980	0.617	87.009	0.910	0.750	87.828	0.975	0.883	87.101	0.994	1.162	85.551	0.985	27.216	0.732
23	0.453	86.259	0.980	0.616	86.668	0.917	0.765	87.321	0.963	0.884	86.875	0.999	1.157	85.348	0.995	27.139	0.684
24	0.453	86.331	0.977	0.572	85.972	0.992	0.760	87.290	0.968	0.884	86.755	0.997	1.162	85.233	0.989	27.112	0.69
25	0.452	86.648	0.978	0.570	86.448	0.994	0.761	87.707	0.964	0.882	87.290	0.997	1.157	85.648	0.991	26.878	0.696
26	0.452	86.661	0.979	0.571	86.473	0.994	0.758	87.637	0.969	0.882	87.294	0.998	1.154	85.649	0.994	26.779	0.69
27	0.454	86.808	0.979	0.590	86.696	0.964	0.764	87.927	0.965	0.885	87.424	0.999	1.162	85.856	0.991	26.582	0.69
28	0.452	86.456	0.979	0.641	86.321	0.982	0.760	87.407	0.966	0.882	86.924	0.997	1.156	85.440	0.992	27.343	0.684
29	0.453	86.310	0.977	0.575	86.039	0.988	0.762	87.534	0.962	0.884	87.004	0.998	1.157	85.233	0.993	26.401	0.696
30	0.451	86.127	0.977	0.625	86.582	0.997	0.755	87.272	0.968	0.880	86.703	0.994	1.161	85.208	0.987	26.961	0.678
UNIT	A	%		A	%		A	%		A	%		A	%		mS	W
UCL	0.7			1.5			1.5			1.5			1.5				1.0
LCL		83	0.9		83	0.8		83	0.9		83	0.9		83	0.9	10	
MAX	0.454	87.084	0.981	0.762	87.227	0.997	0.765	87.927	0.975	0.887	87.434	0.999	1.170	85.953	0.996	27.721	0.744
MIN	0.447	86.052	0.977	0.566	85.972	0.910	0.750	87.272	0.962	0.872	86.703	0.994	1.142	85.164	0.985	26.401	0.678
AVER	0.451	86.596	0.979	0.598	86.596	0.960	0.758	87.616	0.967	0.881	87.125	0.997	1.156	85.553	0.991	26.984	0.700
S	0.002	0.245	0.001	0.037	0.266	0.031	0.004	0.208	0.003	0.003	0.195	0.001	0.006	0.202	0.003	0.283	0.017
Ca																	
Cp	49.74	4.892	23.33	8.109	4.508	1.693	65.71	7.381	8.438	59.19	7.053	23.16	18.37	4.215	10.547	19.977	5.72
CPK	49.74	4.892	23.33	8.109	4.508	1.693	65.71	7.381	8.438	59.19	7.053	23.16	18.37	4.215	10.547	19.977	5.72
RESULT	OK	OK	OK	OK	OK	REF	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

TEST PLAN

CUSTOMER :

DELL

PROJECT NAME :

COMANECI

DELL P/N :

6G356

MODEL :

PA-1900-05D

DOCUMENT REVISION :

B

PREPARED BY :

陈全东
1-22'02

CHECKED BY :

王东 1/22'02

APPROVED BY :

for Peter 1/26'02

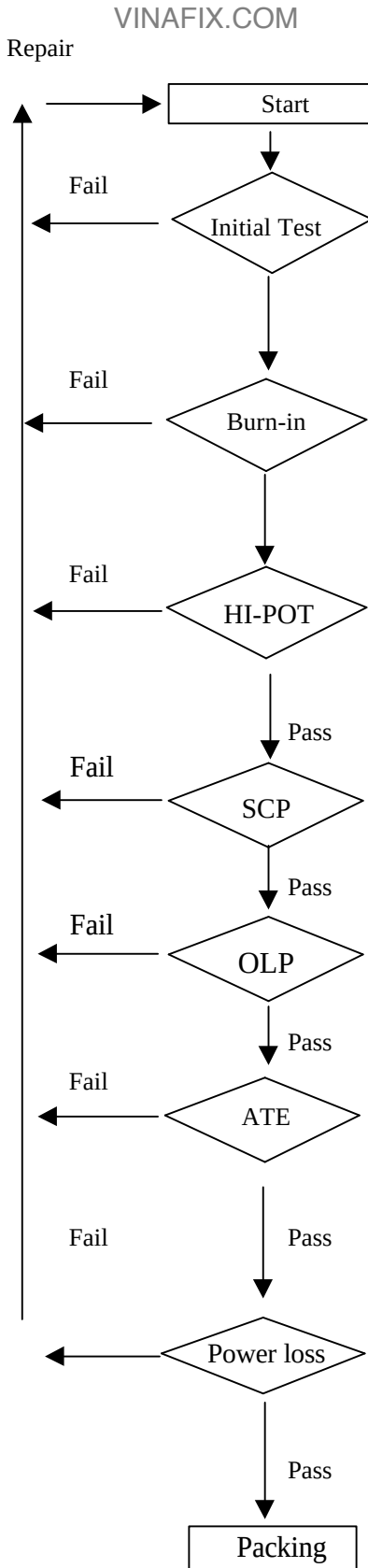
Revision Record

REV.	TOTAL PAGES	Description	DATE	BY
A	11	INITIAL	10.20.001	QD-CHEN
B	11	UPDATE SPEC	11.30.001	QD-CHEN

TEST EQUIPMENT LIST

Test Station	Equipment Used	Quantity
VINAFIX.COM		
AUTO Initial	Smart Electronic Load: Chroma 6314 Oscilloscope : Hitach1 V-252 AC Source : Chroma 6120 Test adapter Personal computer Multimeter : H/P 34401A	1 2 1 1 1 1
Hipot Test	Withstanding Voltage / Insulation/Grounding continuity EXTECH electronic 7440	1
SCP	Smart Electronic Load : Chroma 6310	1
OLP	Smart Electronic Load : Chroma 6310	1
ATE	Swicher analyzer : Chroma 620 Extended Measurement Unit : Chroma 601 Programmable AC source : Chroma 6120 Personal Comlputer	4 1 1 1
POWER LOSS	YOKOGAWA WT-110	1

TEST FLOW



Test Items

- 1 Initial Test
 - a.AC waveform confirmation
 - b. Full load test
 - c. No load test
 - d. OLP
 - e. OTP
- 2 Burn - In
 - a. Loading stress under the temperature of 35+/- 5 degree
 - b. On/ off test
- 3 HI-POT
 - a. Insulation resistance
 - b. Grounding resistance
 - c. Hi-Pot Test
Primary To Secondary
- 4 SCP TEST
- 5 OLP TEST
- 6 ATE
 - a. Turn on (Turn on time,Inrush)
 - b. Turn on (Turn on rise time,Inrush)
 - c. Dynamic
 - d. Combine (Vout ,Vpp)
 - e. Input/output(eff & Irms & PFC)
 - f. Hold up
- 7 POWER LOSS

Specifications

- As in Initial Test Sequence
- f . SCP
- g. OVP
- h. Peak load test
- Vin =220(+/-10%)Vac/ 50 Hz
- 20V : 3.9A (+/- 10%)
- 25 min on
- 5 min : 30Sec on/30Sec off cycle
- DC : 500V , Dwell Time 1 sec (Insulation resistance:30~50M ohm)
- DC : 8V , Dwell Time 3 sec
- Grounding resistance : 100m Ω [(max)
- DC : 2150V , Dwell Time 1 sec
- Vin =180~230Vac/ 50 Hz
- UUT shutdown and latch off
- Vin =90Vac/ 50 Hz
- UUT shutdown and latch off
- Vin=90~264Vac Fin=47~63Hz
- Vin =240Vac/ 50 Hz
- Power loss < 1W

Initial Test Sequences

[illegible]

BURN IN REDUCTION TEST PLAN FOR MASS PRODUCTION

LITON P/N: PA-1900-05D Project Name:

DATE : 2001.12.1

BURN IN CONDITION:

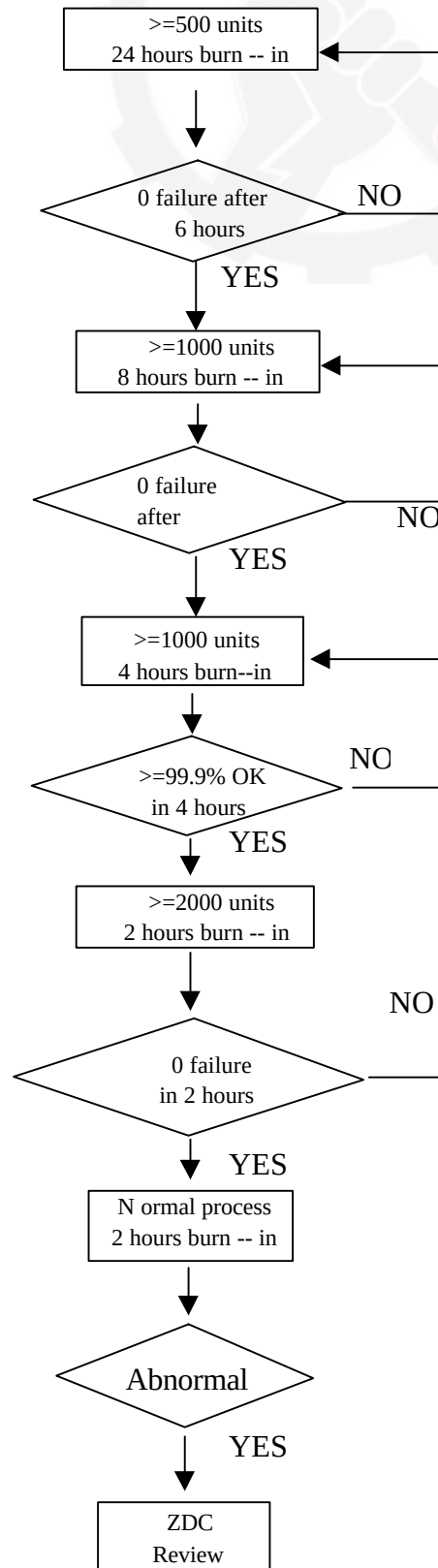
a . Loading stress under the temperature of 35 +/- 5 deg

Vin=220(+/-10%)Vac/50Hz Load=3.9A(+/-10%)

b . On off test

25min on // 5min on/off cycle

VINAFIX.COM



Initial 500units burn-in time shall be done for 24 hours. No failure occur after 6 hours then reducing the burn-in time for 8 hours

Next 1000 units burn-in time shall be done for 8 hours. No failure occur after 2 hours then reducing the burn-in time for 4 hours

Next 1000units burn-in time shall be done for 4 hours. No more than 1pcs fail then reducing the burn-in time for 2 hours.

Next 2000units burn-in time shall be done for 2 hours. No failure occur then begin normal process 2 hours burn in. Otherwise, then return to do 1000units 4 hours burn-in.

1. Repeated Failure Mode / Cause both in OQC and Burn-in.
2. Repeated Failure Mode / Cause both in Burn-in and after Burn-in.
3. Repeated Failure in ORT and in process.

Hi-Pot Test Sequences

[illegible]

SCP Test Sequence

[illegible]

OLP Test Sequence

[illegible][illegible]

ATE Test Sequences

Test Item	Conditions		Spec
TURN-ON	Vin : 90V/47Hz	Load : 4.51A	Turn-on time : 4000ms(max) Inrush current : 50A(REF)
TURN-ON	Vin : 90V/60Hz	Load : 4.51A	Turn-on rise time : 30ms(max)
TURN-ON	Vin : 115V/60Hz	Load : 4.51A	Turn-on time : 4000ms(max) Inrush current : 50A(REF)
TURN-ON	Vin : 132V/63Hz	Load : 4.51A	Turn-on time : 4000ms(max) Inrush current : 50A(REF)
TURN-ON	Vin : 180V/47Hz	Load : 4.51A	Turn-on time : 4000ms(max) Inrush current : 100A(REF)
TURN-ON	Vin : 240V/50Hz	Load : 4.51A	Turn-on time : 4000ms(max) Inrush current : 100A(REF)
TURN-ON	Vin : 240V/50Hz	Load : 4.51A	Turn-on rise time : 30ms(max)
TURN-ON	Vin : 264V/63Hz	Load : 4.51A	Turn-on time : 4000ms(max) Inrush current : 100A(REF)
COMBINE	Vin : 264V/63Hz	Load : 4.51A	Output :
	Vin : 240V/50Hz	Load : 0A	Voltage : 18.9~20.6V
	Vin : 180V/47Hz	Load : 4.51A	Vpp 500mV(max)
COMBINE	Vin : 180V/47Hz	Load : 0.0A	Output :
	Vin : 240V/60Hz	Load : 4.51A	Voltage : 18.9~20.6V
	Vin : 265V/63Hz	Load : 0A	Vpp 500mV(max)
COMBINE	Vin : 132V/63Hz	Load : 4.51A	Output :
	Vin : 115V/60Hz	Load : 0A	Voltage : 18.9~20.6V
	Vin : 90V/47Hz	Load : 4.51A	Vpp 500mV(max)
COMBINE	Vin : 90V/47Hz	Load : 0A	Output :
	Vin : 115V/60Hz	Load : 4.51A	Voltage : 18.9~20.6V
	Vin : 137V/63Hz	Load : 0A	Vpp 500mV(max)
LOAD REGULATION	Vin : 90V/47Hz	Load : 0A	Output :
		Load : 4.51A	Voltage : 18.9~20.6V
		Load : 0A	Vpp 500mV(max)
LOAD REGULATION	Vin : 90V/47Hz	Load : 4.51A	Output :
		Load : 0A	Voltage : 18.9~20.6V
		Load : 4.51A	Vpp 500mV(max)
DYNAMIC	Vin : 90V/60Hz	Load : 0~4.5A	Voltage : 18.9~20.6V
DYNAMIC	Vin : 100V/60Hz	Load : 4.5~0A	Voltage : 18.9~20.6V
DYNAMIC	Vin : 240V/50Hz	Load : 0~4.5A	Voltage : 18.9~20.6V
DYNAMIC	Vin : 264V/50Hz	Load : 4.5~0A	Voltage : 18.9~20.6V
LOAD REGULATION	Vin : 264V/50Hz	Load : 4.51A	Output :
		Load : 5A	Voltage : 18.9~20.6V
		Load : 5.5A	Vpp 500mV(max)
INPUT/OUTPUT	Vin : 264V/50Hz	Load : 4.51A	Eff : 83%(min) PFC :0.8(ref) Irms : 0.7A(max)
INPUT/OUTPUT	Vin : 230V/50Hz	Load : 4.51A	Eff : 83%(min) PFC :0.9(min) Irms : 0.7A(max)
INPUT/OUTPUT	Vin : 115V/60Hz	Load : 4.51A	Eff : 83%(min) PFC :0.9(min) Irms : 1.5A(max)
INPUT/OUTPUT	Vin : 90V/60Hz	Load : 4.51A	Eff : 83%(min) PFC :0.9(min) Irms : 1.5A(max)
HOLD UP	Vin : 90V/60Hz	Load : 4.51A	Hold up time : 10mS(min)

Power loss Test Sequence

[illegible]

World Class Supplier Process

PROCESS MANAGEMENT PLAN

[illegible]

World Class Supplier Process

PROCESS MANAGEMENT PLAN

Customer Part name:		Supplier Facility	LITEON LITE POWER PLANT III		Control Location						
Customer Part Number:					A. Receiving Inspection						
P/N: PA-1900-05D					B. In-Process						
P/L Rev.: 0E					C. Final Inspection						
Supplier ENG Manager: EK LIM		S.Q.A:			Plan Effective Date:2002/1/5					PMP Rev.: 03	

Processes		Machine, Device, Jig Tools for Manufacturing	Characteristics		Methods					Reactions If out of Control Conditions are Encountered	Responsibility
No	Process Name		Process Parameters	Product Characteristics	Product/Process Specification	Evaluation Method	Sample Size	Frequency	Analysis Methods		
1	kit (already check- ed by IQC) issued by material store			Wrong Comp. Comp. Value	Part list	Visual				Send back the parts Inform IQC Request for CA form Vendor for all nonconformance	Foreman Line Leader/ ME IQC / ME
2	Auto Insertion	SEQ machine VCD machine AVK machine		Comp. Reverse Comp. Missing Polarity Comp. Value Comp. Damage Lead Clinching Borken Scratch Lead Length	MOI MOI PCB marking MOI Workmanship standard	Visual	100%	Once/2hours	P-chart	When defects over 1200DPPM(SEQ & VCD machine) or 800DPPM(AVK machine) inform ME, Check the root cause. Adjust machine coordinate & fixture. Implement corrective action . Verify corrective action.	ME/AI Engineer ME/Technician ME/AI Engineer ME/AI Engineer
3	AI LQC	Check PCB fixture		Comp. Reverse Comp. Missing Polarity Comp. Value Lead Clinching Borken Scratch Lead Length	PCB marking Part List Workmanship standard Workmanship standard Workmanship standard Workmanship standard	Visual	100%	Once/2hours	Daily repor	If defects occurred, take repair in accordance with MOI and record it in daily report.	AI foreman
4	Radial Insertion	RI Machine		Comp. Reverse Comp. missing Comp. value Polarity Comp. damage Lead clinching Lead length	MOI MOI MOI PCB marking workmanship standard workmanship standard 1.3mm to 1.8mm	Visual	100%	Once/2hours	P-chart	When defects over 0.5%,stop operation to purge units since last inspection sort. Implement corrective action . Verify corrective action.	AI Supervisor AI Supervisor ME/AI Supervisor AI Supervisor
5	RI LQC	Check PCB fixture		Comp. Reverse		Visual	100%	Once/2hours	Daily repor	If defects occurred, take repair in accordance	AI foreman

World Class Supplier Process**PROCESS MANAGEMENT PLAN**

Customer Part name:			Supplier Facility LITEON LITE POWER PLANT III				Control Location A. Receiving Inspection B. In-Process C. Final Inspection				
Customer Part Number:											
P/N: PA-1900-05D											
P/L Rev.: 0E											
Supplier ENG Manager: EK LIM			S.Q.A:				Plan Effective Date:2002/1/5				PMP Rev.: 03
				Comp. Missing						with MOI and record it in daily report.	
				Polarity	PCB marking						
				Comp. Value	Part List						
				Lead Clinching	Workmanship standard						
				Borken	workmanship standard						
				Scratch	workmanship standard						
				Lead Length	workmanship standard	Caliper					
6	SMD	SMD Machine		Comp. Reverse	MOI	Visual	100%	Once/4hours	P-chart	When defects over control limit, inform Engineer(	AI Engineer
				Polarity	MOI					control limit:SMD:200DPPM;VCD:1200DPPM;RH:	Technician
				Comp. Damage						1000DPPM.) Check the root cause.	
				comp.missing						Implement corrective action.	
				wrong location						Verify corrective action.	
7	SMD LQC	Check PCB fixture		Comp. Reverse		Visual	100%	Once/2hours	Daily report	If defects occurred, take repair in accordance	AI foreman
				Polarity	PCB marking					with MOI and record it in daily report.	
				Comp. Damage	workman standard						
				comp.missing	MOI						
				wrong location	MOI						
8	Preparation	Performing fixture		Comp. value	Part list	Visual	2pcs/part	Once/2hours		When defects found, feedback to operators and	Foreman
		ES-driver		Part No.						record it in report.	
				Approval part.						No problem found marked with green label.	
				Vendor						5 defects found marked with red label.	
				Comp. lead length	MOI	Steel-ruler				3 defects found with yellow label.	
				Leads pitch	Follow MOI	Steel-ruler				1 defects found with blue blabel.	
				Torque	Follow MOI						
		test fixturre									
9	Hand insertion			Location	MOI	Visual	100%	Once/shift	Pass/Fail	When defects found, feedback to operators and	Foreman
				Part No./Comp. Value	Part list					record it in report.	
				Forming	Workmanship standard					No problem found marked with green label.	
				Comp. Damaged	Workmanship standard					5 defects found marked with red label.	
				Wrong/lifting	MOI					3 defects found with yellow label.	
				Polarity reverse	MOI					1 defects found with blue blabel.	
				Slant/missing	MOI						

World Class Supplier Process

PROCESS MANAGEMENT PLAN

Customer Part name:			Supplier Facility	LITEON LITE POWER PLANT III				Control Location A. Receiving Inspection B. In-Process C. Final Inspection			
Customer Part Number:											
P/N: PA-1900-05D											
P/L Rev.: 0E											
Supplier ENG Manager: EK LIM			S.Q.A:				Plan Effective Date:2002/1/5				PMP Rev.: 03
10	H/I LQC			Location	MOI	Visual	100%	Once/2hours	Check record	When defect rate over UCL inform line leader.	IE /Foreman
				Part No./Comp. Value					P-chart	Check the root cause of the problem	IE engineer
				Forming						and take corrective action.	
				Comp. Damaged						Verify corrective action.	IE/IPQC engineer
				Wrong							
				Polarity reverse							
				Slant/missing							
				lifting							
11	Wave soldering	Wave soldering	Solder temp.		240℃	Thermometer	100%	Once/4hours	Wave soldering	when defects over 1500DPPM, inform RM.	RM/IPQC engineer
		machine	Belt Speed		1.30+/-0.1m/min.	Stop watch				Check the root cause and take	RM engineer
			Preheat 1 temp.		320+/-10℃	Thermometer			control chart	corrective action and containment.	
			Preheat 2 temp.		410+/-10℃	Thermometer				Verify corrective action.	RM/IPQC engineer
			Dip time		3.0 +/-1sec.	Dip test					
			Flux density		0.842+/-0.02g/cm³	hydrometer	100%	Once/2hours	X-R chart		
				Soldering Quality	workmanship standard		20PCS	Once/2hours	Records list of defect		
12	Touch-up	Soldering Iron	Solder temp.		Follow MOI	Temp. Tester	100%	Once/4hours	check record	When defects occurred, feedback to operators	Foreman
										and record it in report.	
13	TU LQC			Solder Crack	Workmanship	MOI	100%	Once/2hours	Check record	When defect rate over UCL inform IE engineer	IE / IPQC engineer
				Solder Excessive	standard				p-chart	Check the root cause of the problem.	Line leader
				Solder Insufficient						and take corrective action.	
				Solder Short						Verify corrective action.	
				Solder Splash							
				Solder Spot/ball							
				Cold Soldering							
				Missing Soldering							
14	Initial test-1						100%	Once/2hours	P-Chart	When defect rate over UCL inform PE engineer.	PE/Line leader
										Check the root cause of the prolbem and	Technician / PE
		Test fixture		Input voltage	90-264Vac	Voltage display				take the corrective action.	PE/IPQC
		Auto Test-		Output Voltage	18.9~20.6Vdc	waveform display				Verify corrective action.	engineer
		System		Output Load	0-4.51	waveform display					

World-Class Supplier Process

PROCESS MANAGEMENT PLAN

Customer Part name:			Supplier Facility	LITEON LITE POWER PLANT III				Control Location A. Receiving Inspection B. In-Process C. Final Inspection			
Customer Part Number:											
P/N: PA-1900-05D P/L Rev.: 0E											
Supplier ENG Manager: EK LIM			S.Q.A:					Plan Effective Date:2002/1/5			PMP Rev.: 03
				AC wave-form	MOI						
				OVP	waveform shut down&Latch off						
				OTP	waveform shut down&Latch off						
15	Initial test-2						100%	Once/2hours	P-Chart	When defect rate over UCL inform PE engineer.	PE/Line leader
										Check the root cause of the prolbem and	Technician / PE
		Test fixture		Input voltage	220Vac	Voltage display				take the corrective action.	PE/IPQC
		Electronic-load		Peak Load	5.5A(4S)	waveform display				Verify corrective action.	engineer
				SCP	waveform shut down &Latch	waveform display					
				OLP	waveform shut down &Latch off						
16	Insert and solder	Soldering Iron	Solder temp.		375 deg. -450 deg.	Temp. Tester	100%	Once/4hours	heck recor	When defects occurred, feedback to operators	Foreman
	DC Code			Slant						and record it in report.	
17	Apply Glue	Glue machine		Glue Location	MOI	Visual	100%	Once/4hours	Maintenance	When the machine was damaged, inform RM	Foreman /
									daily sheet	and record it in report.	RM engineer
18	Ass'y LQC			Assembly	MOI	Visual	100%	Once/2hours	P- Chart	When defect rate over UCL inform IE engineer	IE/Line leader
				workmanship						Check the root cause of the prolbem and	Technician / IE
										take the corrective action.	
										Verify corrective action.	IE/IPQC engineer
19	Burn-in test	Burn-in room		Input	180~230Vac	Led	100%	Once/2hours	P- Chart	When defect rate over UCL inform PE enginee	PE/Line leader
				Output Voltage	Load:3.9(+/-10%)A					Check the root cause of the prolbem and	Technician / PE
				Temperature	35+/-5 °C					take the corrective action.	
				Time	25 min. on					Verify corrective action.	PE/IPQC engineer
					5 min.off(30 Sec/on; 30 Sec/off)					For the different stages of model,perform the	
					following B/I test plan					B/I reduction plan.(See detail in B/I test plan)	
20	Hi-pot Test	Extench elec-				Alarm	100%	Once/2hours	Daily Record	When failure (1pcs), inform line leader & engineer.	PE / Line leader
				Insulation test	500Vdc SPE:30~50Mohm						
		tronic 7440		Ground test	25A/8Vdc					Check the root cause of the problem	Technician
				Ground resistance	0-100mΩ					and take the corrective action.	PE engineer
				Dwell time	3s					Implement corrective action.	IPQC engineer

World[™] Class Supplier Process

PROCESS MANAGEMENT PLAN

Customer Part name:			Supplier Facility	LITEON LITE POWER PLANT III				Control Location A. Receiving Inspection B. In-Process C. Final Inspection			
Customer Part Number:											
P/N: PA-1900-05D											
P/L Rev.: 0E											
Supplier ENG Manager: EK LIM			S.Q.A:				Plan Effective Date:2002/1/5				PMP Rev.: 03
				Pri. to Sec.	Volt. 2150Vdc						
				Leakage limit	0.25mA(MAX) 0.0mA(min)						
				Dwell time	1s						
21	OLP			Input	220v+/-10%					and take the corrective action.	
				UUT shutdown and latch off						When defect rate over UCL inform PE engineer.	
				OLP Point	5.5-6.5A					verify the corrective action	
22	ATE	ATE fixture		Input voltage	90~264V	pass/fail test	100%	Once/2hours	Monitoring	When defect rate over UCL inform PE engineer.	PE/Line leader
		ATE test system		Frequency	47~63Hz				P-chart	Check the root cause of the problem.	Technician / PE
				Loading	0~4.51A					and take the corrective action.	
				TURN-ON TIME	Follow MTR					When defect rate over UCL inform PE engineer.	PE/Line leader
				TURN-ON RISE TI	Follow MTR					verify the corrective action	PE/IPQC engineer
				Combine	Follow MTR						
				Dynamic load	Follow MTR						
				ADP efficiency	Follow MTR						
				Hold up time	Follow MTR						
23	Ultrasonic	Ultrasonic Wel		Pressure	3.8+/-0.5Kg/cm ²	MOI	100%	Once/2hours	aily Recor	When defects found, inform RM engineer.	Foreman/RM engineer
	Welding	machine		Delay times	0.60+/-0.08S					Check the root cause of the problem and	RM engineer
				Welding times	0.68+/-0.08S					take corrective action.	
				Hardening times	0.35+/-0.08S					Implement corrcotive action.	Line leader
				Power	4+/-1					Verify corrective action.	IPQC engineer
24	Hi-pot Test	Extench elec-				Alarm	100%	Once/2hours	Daily Record	When failure (1pcs), inform line leader & engineer.	PE / Line leader
				Insulation test	500Vdc SPE:30~50Mohm						
		tronic 7440		Ground test	25A/8Vdc					Check the root cause of the problem	Technician
				Ground resistance	0-100mΩ					and take the corrective action.	PE engineer
				Dwell time	3s					Implement corrective action.	IPQC engineer
				Pri. to Sec.	Volt. 2150Vdc						
				Leakage limit	0.25mA(MAX) 0.0mA(min)						
				Dwell time	1s						

World Class Supplier Process

PROCESS MANAGEMENT PLAN

Customer Part name:			Supplier Facility LITEON LITE POWER PLANT III					Control Location A. Receiving Inspection B. In-Process C. Final Inspection				
Customer Part Number:												
P/N: PA-1900-05D												
P/L Rev.: 0E												
Supplier ENG Manager: EK LIM			S.Q.A:					Plan Effective Date:2002/1/5				PMP Rev.: 03
25	OLP			Input	220v+/-10%					and take the corrective action.		
				UUT shutdown and latch off						When defect rate over UCL inform PE engineer.		
				OLP Point	5.5-6.5A					verify the corrective action		
26	ATE	ATE fixture		Input voltage	90~264V	pass/fail test	100%	Once/2hours	Monitoring	When defect rate over UCL inform PE engineer. PE/Line leader		
		ATE test system		Frequency	47~63Hz				P-chart	Check the root cause of the problem. Technician / PE		
				Loading	0~4.51A					and take the corrective action.		
				TURN-ON TIME	Follow MTR					When defect rate over UCL inform PE engineer. PE/Line leader		
				TURN-ON RISE TI	Follow MTR					verify the corrective action PE/IPQC engineer		
				Combine	Follow MTR							
				Dynamic load	Follow MTR							
				ADP efficiency	Follow MTR							
				Hold up time	Follow MTR							
										verify the corrective action		
27	Labeling				MOI	Visual	100%		Pass/Fail	When defect found inform Line leader. Operator		
										Check the root cause and take corrective		
										action and verify corrective action. Foreman/Line leader		
28	Packing LQC	Visual		SPS structure	MOI	Visual	100%	Once/2hours	check record	When defects over UCL inform line leader. IE / Line leader		
									P-chart	Check the root cause of the problem and take IE / Line leader		
										corrective action .		
										Implementcorrective action. IE / Line leader		
										Verify corrective action. IE / IPQC		
29	Packing			Power Q'TY	MOI	Visual	100%	Once/sheet	Pass/fail	When defects found, inform IPQC leader. Line leader		
				Packing order						corrective action and containment. IPQC leader		
30	Outgoing insp.	Power testing		Electric function	OQC inspection checklist	Led		one pallet	QC inspectio	When defect found, inform PE engineer. OQC supervisor		
		Hi-pot tester			product spec.	Tester		Sample size:50	report	Check the root cause of the problem. OQC supervisor		
		Electronic-loa			product spec.	Visual		or all check		and take the corrective action. ENG engineer		
		ATE Fixture			product spec.			(follow QI-03)		Implement corrective action. foreman		
		Measuring rule		DC Cord length	Appearance drawing					Verify corrective action. MFG supervisor		
		Caliper		Case high	Appearance drawing					IPQC engineer		
31	Outgoing			Input	230Vac	ORT report		3 units/day	Pass/Fail	When defect found inform engineering CQS supervisor		
	Reliability test			Time	168Hours					stop shipment QC manager		

World Class Supplier Process

PROCESS MANAGEMENT PLAN

Customer Part name:			Supplier Facility LITEON LITE POWER PLANT III					Control Location A. Receiving Inspection B. In-Process C. Final Inspection					
Customer Part Number:													
P/N: PA-1900-05D													
P/L Rev.: 0E													
Supplier ENG Manager: EK LIM			S.Q.A:					Plan Effective Date:2002/1/5				PMP Rev.: 03	
				Loading	Full load					search root cause and give CA	ENG engineer		
				ORT plan						IQA	MFG supervisor		
										verify	IPQC engineer		