



## CB TEST CERTIFICATE

Ref. Certificate No.

KR-3407

### IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

Issued by: Korea Testing Laboratory (KTL)

Product: LCD Color Television Receiver

Applicant: SAMSUNG Electronics Co., Ltd. 416, Maetan-3Dong, Yeongtong-Gu, Suwon-City, Kyungki-Do, Korea, Republic of

Manufacturer: SAMSUNG Electronics Co., Ltd. 416, Maetan-3Dong, Yeongtong-Gu, Suwon-City, Kyungki-Do, Korea, Republic of

Factory: SAMSUNG Electronics Co., Ltd. 416, Maetan-3Dong, Yeongtong-Gu, Suwon-City, Kyungki-Do, Korea, Republic of  
nb: Additional factory information on page 2

Rating and principal characteristics: 100-240V~ 50/60Hz, 240W or 190W Class I or 220-240V~ 50/60Hz, 240W or 190W Class I

Trade mark (if any): SAMSUNG

Model/Type reference: TU40EO and variant (see page 3 of 06-1331-0587)

Additional information:

Sample of product tested to be in conformity with IEC: 60065(ed.7) National differences: SG Comments: + EN 60065\_2002

Test Report Ref. No: 06-1331-0587

This CB Test Certificate is issued by the National Certification Body:

Korea Testing Laboratory (KTL)  
222 - 13 Guro-3Dong, Guro-Gu, Seoul 152 - 718, Korea

Signed by: Mr. Jong-Myung LEE

Date of issue: 2007-02-27



IEC SYSTEM FOR CONFORMITY TESTING TO  
STANDARDS FOR SAFETY OF ELECTRICAL  
EQUIPMENT (IECEE) CB SCHEME

Ref. Certificate No.

KR-3407

See annex1

Additional information (if necessary)

This CB Test Certificate is issued by the National Certification Body:

Korea Testing Laboratory (KTL)  
222 - 13 Guro-3Dong, Guro-Gu, Seoul 152 - 718, Korea

Signed by: Mr. Jong-Myung LEE

Date of issue: 2007-02-27

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Ref. Certification No. : KR-3407

Date of Issue: 2007-02-27

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**Factory Name and Address**

<b>Factory Name</b>	<b>Address</b>	<b>Country</b>
1. SAMSUNG MEXICANA S.A de C.V.	Blvd. Los Olivos No.11110, Parque Lnd. El Florido Segunda Seccion C.P.22860 Tijuana, B.C.	MEXICO
2. SAMSUNG ELECTRONICS HUNGARIAN Co.,Ltd.	H-5126 Jaszfenyszaru, Samsung ter 1	Hungary
3. TIANJIN TONGGUANG SAMSUNG ELECTRONICS Co.,Ltd.	Wei 4 Road, Microelectronics Industrial Park, Jin Gang Highway,Tianjin,	CHINA.
4. Tianjin Samsung Electronics Display Co., Ltd	Wei 4 Road, Microelectronics Industrial Park, Jin Gang Highway,Tianjin,	CHINA.
5. SAMSUNG ELECTRONICS SPAIN Co.,Ltd.	Pol.Lnd,Riera De Caldes, Via Augusta, 10,08184 Palau De Plegamans,Barcelona	SPAIN
6. SAMSUNG INDIA ELECTRONICS LIMITED COPORATA OFFICE	Noida B-1, Sector 81, Phase-li, Nodia(Up)	INDIA
7. THAI SAMSUNG ELECTRONICS Co.,Ltd	313 Moo 1,Sukhphiban 8 Road,Sriracha Cholburi 20230,	THAILAND
8. SAMSUNG ELECTRONICS Display(M)Sdn.Bhd(SDMA)	HSD 69244 NO.P.T.12692,Mukim Ampangan, Tuanku Jaafar Industrial Park, 71450 Seremban, N.Sembilan,	MALAYSIA
9. Chang Jin Information Co., Ltd.	621-5 Gupo-dong, Gumi-city, Kyungsangbuk-do,	KOREA
10.Samsung Electronics Slovakia s.r.o	Hviezdoslavova 807 924 27 Galanta	Slovak Republic
11. SAMSUNG ELECTRONICS Da Amazonia Ltd.(SEDA)-Manaus	Av.Itauba, 3025/3075-Distrito Industrial CEP:69.088-240 Manaus, Am,	Brazil
12.TIANJIN GREATWALL(GROUP) CO.,LTD.	16 You Yi Road, Hexi District,Tianjin,	CHINA
13. SAVINA	9 Troung Son Street, Linh Trung Thu Duc, Hon Chi Minh City,	Vietnam
14. Samsung Electronics Indonesia(SEIN)	Ckarang Industrial Estate JL Jababeka, Raya Blok F No 29-33, Cikarang, Bekasi,	Indonesia

<p align="center"><b>TEST REPORT</b>  <b>IEC/EN 60 065</b>  <b>Audio, video and similar electronic apparatus</b>  <b>Safety requirements</b></p>	
Report Reference No.....	06-1331-0587
Tested by (+ signature) .....	Sang-gon Lee
Approved by (+ signature).....	Yong-deuck Lee
Date of issue.....	February 27, 2007
Contents.....	See page 3
Testing laboratory Name .....	KTL (Korea Testing Laboratory)
Address.....	222-13, Guro-3dong, Guro-gu, Seoul, 152-718, Korea
Testing location.....	Same as above
Client Name .....	SAMSUNG Electronics Co., Ltd.
Address.....	416, Maetan-3Dong, Yeongtong-Gu, Suwon-City, Kyungki-Do,
	442-742, Korea
Standard .....	IEC 60065_2001 / EN 60065_2002
Test procedure .....	CB-scheme
Non-standard test method.....	N.A.
<b>Test Report Form/blank test report</b>	
Test Report Form No.....	IECEN60065F
TRF originator.....	BEAB
Master TRF.....	Dated 2003-02
<p>Copyright @ 2003 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.</p> <p>This publication may be produced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context</p>	
Test item Description.....	LCD Color Television Receiver
Trademark.....	Samsung
Model and/or type reference .....	TU40EO and variant (see page 3)
Manufacturer.....	The same as client (Factory: See page 4)
Rating(s) .....	100-240V~ 50/60Hz, 240W or 190W Class I or
	220-240V~ 50/60Hz, 240W or 190W Class I

**Test case verdicts**

Test case does not apply to the test object..... : N(.A.)

Test item does meet the requirement ..... : P(ass)

Test item does not meet the requirement ..... : F(ail)

**Testing**

Date of receipt of test item ..... : December 12, 2006

Date(s) of performance of test..... : December 12, 2006 – February 26, 2007

**General remarks**

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

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

"(see appended table)" refers to a table appended to the report.

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

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

**Summary of Testing and Conclusions**

The sample(s) tested complies with the requirements of IEC/EN 60065:2002. Compliance with European Special National Conditions, Annex ZB, and A – Deviations, Annex ZC, is recorded at the end of this report.

## Items covered

1. Model number covered by the scope of this test report is as follows;

The products differences in the following respects: Minor differences in the external design as well as in the low voltage secondary circuits, with no importance from safety point of view.

As the differences from TU40EO, listed below.

Alternative models type : **xx40yy** or **xx40yyyyyy** or **xx-40yyyyyy**

1)2) 3)4) 5)6) 7)8)9)10)11) 5)6) 7)8)9)10)11)

Models designation can be explained by follows.

- 40: Screen size
- 1)2) : Project name (can be TU,BP,JA, BD)
- 3)4) : Marketing region (can be EO, UO, SO, JO, KO, CO)
- 5)6) : Marketing region (can be LN, LT, LTN, LS, LTP, LW, LNR, LE, LA, SE)
- 7) : Cabinet design for project (can be M, R, S)
- 8)9) : Cabinet design (can be any 2 numeric characters)
- 10)11) : Function (can be any 2, 3, 4 or 5 alphanumeric characters or blank)

2. We tested TU40EO as a basic model for the most severe test conditions.

3. These products, TU40EO series, are intended to use of internal SMPS power boards as follows.

1) Model no. of internal SMPS power board: **IP-231135A**

- Manufacturer: Samsung Electro-Mechanics Co., Ltd.
- Rating: 100-240Vac, 50/60Hz, 4.0A Cl.I
- Output: 0.5A/ +5.2V, 4.0A/+5.4V, 1.2A/+12.0V, 2.0A/+13.0V, (CNI801-CNI802) 100mA/2100Vac
- Applied Standard: IEC 60065:2001 / EN 60065:2002
- Approved by: NEMKO AS
- Report and Certification No. : 78822 / NO41914

2) Model No. of internal SMPS power board: **SIP400B**

- Manufacturer: Hansol LCD Inc.
- Rating: 100-240Vac, 50/60Hz, 4.0A Cl.I
- Output: STB DC 5.2Vdc/0.3A, DC 5.4V/3.5A, DC 12V/1.0A, DC 13V/1.5A, Inverter 1500Vrms/72mArms
- Applied Standard: IEC 60065:2001 / EN 60065:2002
- Approved by: DEMKO
- Report and Certification No. : E301536-C06T003-1 / DK-10597

4. These models, TU40EO series, have two input rated voltage according to marketing area. There is no difference except for marking of rated voltage.

5. Marking of power consumption might be different according to adopted LCD panel.

- The model series with marking of 240W power consumption: xx40TU, xx40yyMyy or xx-40yyMyy
- The model series with marking of 190W power consumption: Others models

## Manufacturer and factory

1. The same as manufacturer
2. SAMSUNG MEXICANA S.A de C.V.  
Blvd. Los Olivos No.11110, Parque Lnd. El Florido  
Segunda Seccion C.P.22860 Tijuana, B.C.MEXICO.
3. SAMSUNG ELECTRONICS HUNGARIAN Co., Ltd.  
H-5126 Jaszfenyszaru, Samsung ter 1 Hungary.
4. TIANJIN TONGGUANG SAMSUNG ELECTRONICS Co., Ltd.  
Wei 4 Road, Microelectronics Industrial Park, Jin  
Gang Highway,Tianjin, People's Republic Of CHINA.
5. Tianjin Samsung Electronics Display Co., Ltd  
Wei 4 Road, Microelectronics Industrial Park, Jin  
Gang Highway,Tianjin, People's Republic Of CHINA
6. SAMSUNG ELECTRONICS SPAIN Co., Ltd.  
Pol.Lnd,Riera De Caldes, Via Augusta,  
10,08184 Palau De Plegamans,Barcelona,SPAIN.
7. SAMSUNG INDIA ELECTRONICS LIMITED COPORATA OFFICE  
Noida B-1, Sector 81, Phase-Ii, Nodia(Up) INDIA.
8. THAI SAMSUNG ELECTRONICS Co., Ltd.  
313 Moo 1,Sukhphiban 8 Road,Sriracha Cholburi 20230,THAILAND..
9. SAMSUNG ELECTRONICS Display(M)Sdn.Bhd(SDMA)  
HSD 69244 NO.P.T.12692,Mukim Ampangan,  
Tuanku Jaafar Industrial Park, 71450 Seremban, N.Sembilan, Malaysia
10. Chang Jin Information Co., Ltd.  
621-5 Gupo-dong, Gumi-city, Kyungsangbuk-do, Korea.
11. Samsung Electronics Slovakia s.r.o  
Hviezdoslavova 807  
924 27 Galanta,Slovak Republic.
12. SAMSUNG ELECTRONICS Da Amazonia Ltd.(SEDA)-Manaus  
Av.Itauba, 3025/3075-Distrito Industrial  
CEP:69.088-240 Manaus, Am, Brazil
13. TIANJIN GREATWALL(GROUP) CO., LTD.  
16 You Yi Road, Hexi District,Tianjin, China.
14. SAVINA  
9 Troung Son Street, Linh Trung Thu Duc, Hon Chi Minh City, Vietnam
15. Samsung Electronics Indonesia(SEIN)  
Ckarang Industrial Estate JL Jababeka, Raya Blok F No 29-33, Cikarang, Bekasi, Indonesia

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5. ATTACHEMNT 2 : Circuit diagrams

**Copy of marking plate**

**SAMSUNG**  
Model : LE40M86BD X  
Model Code : LE40M86BDX/XEC  
Type No.: TU40EO  
AC220-240V~ 50/60Hz 240W  
Apparatet må kun tilkoples jordet stikkontakt  
Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk  
MADE IN KOREA  
S/N : \*\*\*\*\*E





**SAMSUNG**  
Model : LE40M86BD X  
Model Code : LE40M86BDX/XEC  
Type No.: TU40EO  
AC100-240V~ 50/60Hz 240W  
Apparatet må kun tilkoples jordet stikkontakt  
Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk  
MADE IN KOREA  
S/N : \*\*\*\*\*E





**SAMSUNG**  
Model : LE40R81W X  
Model Code : LE40R81WX/XEC  
Type No.: BP40EO  
AC220-240V~ 50/60Hz 190W  
Apparatet må kun tilkoples jordet stikkontakt  
Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk  
MADE IN KOREA  
S/N : \*\*\*\*\*E





**SAMSUNG**  
Model : LE40R81W X  
Model Code : LE40R81WX/XEC  
Type No.: BP40EO  
AC100-240V~ 50/60Hz 190W  
Apparatet må kun tilkoples jordet stikkontakt  
Apparaten skall anslutas till jordat uttag när den ansluts till ett nätverk  
MADE IN KOREA  
S/N : \*\*\*\*\*E







IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
3	GENERAL REQUIREMENTS		
	Safety class of the apparatus .....	Class 1	P
4	GENERAL CONDITIONS OF TESTS		
4.1.4	Ventilation instructions require the use of the test box	No	N
5	MARKING		
	Comprehensible and easily discernible	Rear Enclosure	P
	Permanent durability against water and petroleum spirit		P
5.1	Identification, maker, model .....	Samsung TU40EO	P
	Class II symbol if applicable	Class I Equipment	P
	Rated supply voltage and symbol .....	AC 100-240V~ or AC 220- 240V~	P
	Frequency if safety dependant	50/60Hz	P
	Rated current or power consumption .....	240W or 190W	P
5.2	Earth terminal	Mains inlet with earth terminal	P
	Hazardous live terminals	No live terminal	N
	Supply output terminals (other than mains)	No supply output	N
5.3	Use of triangle with exclamation mark	In circuit diagram	P
5.4	Instructions for use	By English	P
5.4.1	Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.	In user's manual "Do not place a water containing vessel on this apparatus, as this can result in a risk or fire or electric shock. Do not expose this apparatus to rain or place it near water (near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool etc.)"	P
	Hazardous live terminals, instructions for wiring	No live terminal	N
	Instructions for replacing lithium battery	No battery	N
	Instructions for modem if fitted	No modem used	N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
	Class I earth connection warning	In user's manual "Use only a properly grounded plug and receptacle. An improper ground may cause electric shock or equipment damage."	P
	Instructions for multimedia system connection	In user's manual	P
	Special stability warning for fixed installation	The apparatus is tested to the stability requirements of 19.1-3	N
5.4.2	Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings	In user's manual "To disconnect the apparatus from the mains, the plug must be pulled out from the mains socket, therefore the mains plug shall be readily operable"	P
	Instructions for permanently connected equipment	No permanently connected equipment	N

6	HAZARDOUS RADIATION		
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h)	No ionizing radiation	N
6.1 EN 60065	European Council Directive 96/29/Euratom of 13 May 1996 10cm from outer surface of apparatus <1μSv/h (0,1mR/h)		N
6.2	Laser radiation, emission limits to IEC 60825-1 ..... :	No laser system	N
	Emission limits under fault conditions ..... :		N

7	HEATING UNDER NORMAL OPERATING CONDITIONS		
7.1	Temperature rises not exceeding specified values, no operation of fuse links	(see appended table)	P
7.1.1	Temperature rise of accessible parts	(see appended table)	P
7.1.2	Temperature rise of parts providing electrical insulation	(see appended table)	P
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier	(see appended table)	P
7.1.4	Temperature rise of windings	(see appended table)	P
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	(see appended table)	P
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150 °C	(see appended table)	N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
8	CONSTRUCTIONAL REQUIREMENTS WITH REGARD TO THE PROTECTION AGAINST ELECTRIC SHOCK		
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	Considered as bare	P
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.	No voltage setting device	N
8.3	Insulation of hazardous live parts not provided by hygroscopic material	No hygroscopic materials	N
8.4	No risk of electric shock following the removal of a cover which can be removed by hand	No shock hazard	P
8.5	Class I equipment		P
	Basic insulation between hazardous live parts and earthed accessible parts		P
	Resistors bridging basic insulation complying with 14.2.1 a)		P
8.6	Class II equipment and Class II constructions within Class I equipment	Class II construction within class I equipment (Evaluated by CB test report of SMPS board)	P
	Reinforced or double insulation between hazardous live parts and accessible parts	(Evaluated by CB test report of SMPS board)	P
	Components bridging reinforced or double insulation complying with 14.1 a) or 14.3	(Evaluated by CB test report of SMPS board)	P
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.2.1 a)	(Evaluated by CB test report of SMPS board)	P
	Reinforced or double insulation being bridged with 2 capacitors in series complying with 14.2.1 a)		N
	Reinforced or double insulation being bridged with a single capacitor complying with 14.2.1 b)	(Evaluated by CB test report of SMPS board)	P
	Basic insulation bridged by components complying with 14.3.4.3		N
8.7	Basic insulation between parts at 35 V to 71 V (peak) a.c. or 60 V to 120 V d.c. and accessible parts		N
	Reinforced or double insulation between circuits operating at voltages between 35 V and 71 V (peak) a.c. or between 60 V and 120 V d.c. and hazardous live parts at higher voltage		N
	Separation by Class II isolating transformer		N
	Separation by Class I transformer		N
	Separation by earthed conductive part		N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
8.8	Basic or supplementary insulation > 0,4 mm (mm) .....		P
	Reinforced insulation > 0,4 mm (mm) .....	(Evaluated by CB test report of SMPS board)	P
	Thin sheet insulation	(Evaluated by CB test report of SMPS board)	P
	Basic or supplementary insulation, at least two layers, each meeting 10.3		N
	Basic or supplementary insulation, three layers any two of which meet 10.3		N
	Reinforced insulation, two layers each of which meet 10.3		N
	Reinforced insulation, three layers any two which meet 10.3		N
8.9	Adequate insulation between internal hazardous live conductors and accessible parts	Provided double or reinforce insulation	P
	Adequate insulation between internal hazardous live parts and conductors connected to accessible parts	Dressed away from live parts	P
8.10	Double insulation between conductors connected to the mains and accessible parts	Class I equipment	N
8.11	Detaching of wires		P
	No undue reduction of creepages or clearance distances if wires become detached	Yes	P
	Vibration test carried out .....	No	N
8.12	Adequate cross-sectional area of internal wiring to mains socket-outlets	No socket outlets	N
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)		N
8.14	Adequate fastening of covers (pull test 50 N for 10 s)		N
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges	Wires are dressed away from hot parts or sharp edge	P
8.16	Only special supply equipment can be used	No special supply equipment	N
8.17	Insulated winding wire without additional interleaved insulation	(Evaluated by CB test report of SMPS board)	P
8.18	Endurance test as required by 8.17		N
8.19	Disconnection from the mains		P
8.19.1	Disconnect device	Type : Mains Plug	P
	All-pole switch or circuit breaker with >3mm contact separation		N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
8.19.2	Mains switch ON indication		N
8.20	Switch not fitted in the mains cord	No switch	N
8.21	Bridging components comply with clause 14		N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
9	ELECTRIC SHOCK HAZARD UNDER NORMAL OPERATING CONDITIONS		
9.1	Testing on the outside		
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation	< 1000 V ac and < 1500 V dc	P
9.1.1.1	Touch current measured from terminal devices using the network in annex D ..... :	<IP-231135A> U <sub>1</sub> : 0.78V U <sub>2</sub> : 0.19V <SIP400B> U <sub>1</sub> : 0.91V U <sub>2</sub> : 0.22V	P
	Discharge not exceeding 45 µC		P
	Energy of discharge not exceeding 350 mJ		N
9.1.1.2	Test with test finger and test probe		P
9.1.2	No hazardous live shafts of knobs, handles or levers	No live shafts	N
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin	Width of ventilation less than in 4 mm	P
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032	No hazard	P
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032	No hazard	P
9.1.5	Pre-set controls tested with 2.5 mm x 100 mm test pin (10 N); test probe C of IEC 61032	No preset controls	N
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s :	Apparatus on and stand-by mode : Max 40V	P
	If C is not greater than 0,1 µF no test needed		N
9.1.7	Enclosure sufficiently resistant to external force	No damaged, No hazard.	P
	Test probe 11 of IEC 61032 for 10 s (50 N)		P
	Test hook of fig. 4 for 10 s (20 N)		P
	30 mm diameter test tool for 5 s (100 or 250 N) ... :		N
9.2	No hazard after removing a cover by hand		N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

10	INSULATION REQUIREMENTS		
10.1	Insulation resistance (MΩ) at least 2 MΩ min. after surge test for basic and 4 MΩ min. for reinforced insulation .....	> 100Mohm	P
10.2	Humidity treatment 48 h or 120 h .....	120 h, 93%, 40(°C)	P
10.3	Insulation resistance and dielectric strength	(see appended table)	P

11	FAULT CONDITIONS		
11.1	No shock hazard under fault condition		P
11.2	Heating under fault condition		P
	No hazard from softening solder		P
11.2.1	Measurement of temperature rises	(see appended table)	P
11.2.2	Temperature rise of accessible parts	(see appended table)	P
11.2.3	Temperature rise of parts, other than windings, providing electrical insulation	(see appended table)	P
	Temperature rise of printed circuit boards (PCB) exceeding the limits of table 3 by max. 100 K for max. 5 min	Not exceeding the limit of table 2	N
	a) Temperature rise of printed circuit boards (PCB) to 20.1.3, exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm <sup>2</sup>		N
	b) Temperature rise of printed circuit boards (PCB) to 20.1.3 up to 300 K for an area not greater than 2 cm <sup>2</sup> for a maximum of 5 min		N
	Meets all the special conditions if conductors on printed circuit boards are interrupted		N
	Class I protective earthing maintained	(see appended table)	P
11.2.4	Temperature rise of parts acting as a support or mechanical barrier	(see appended table)	P
11.2.5	Temperature rise of windings	(see appended table)	P
11.2.6	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.5	(see appended table)	P

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

12	MECHANICAL STRENGTH		
12.1.1	Bump test where mass >7 kg		P
12.1.2	Vibration test		N
12.1.3	Impact hammer test	0.5J	P
	Steel ball test	2J	P
12.1.4	Drop test for portable apparatus where mass < 7 kg	Not portable apparatus	N
12.1.5	Thermoplastic enclosures strain relief test	7h, 80 (°C)	P
12.2	Fixing of knobs, push buttons, keys and levers	100 N	P
12.3	Remote controls with hazardous live parts	No remote control with live	N
12.4	Drawers (pull test 50 N, 10 s)	No drawers	N
12.5	Antenna coaxial sockets providing isolation	Antenna socket outlets was mounted on secondary circuits	N
12.6	Telescoping or rod antennas construction	No such a device	N
12.6.1	Telescoping or rod antennas securement		N



IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

13	CLEARANCE AND CREEPAGE DISTANCES		
13.1	Clearances in accordance with 13.3	(see appended table)	P
	Creepage distances in accordance with 13.4	(see appended table)	P
13.2	Determination of operating voltage	(see appended table)	P
13.3	Clearances	(see appended table)	P
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9	(see appended table)	P
13.3.3	Circuits not conductively connected to the mains comply with table 10		N
13.4	Creepage distances	(see appended table)	P
	Creepage distances greater than table 11 minima	(see appended table)	P
13.5	Printed boards		N
13.5.1	Clearances and creepage distances between conductors on printed circuit boards, one of which may be conductively connected to the mains, as in fig. 10	None	N
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)	None	N
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4	None	N
	Conductive parts along reliably cemented joints comply with 8.8	(Evaluated by CB test report of SMPS board)	P
13.7	Enclosed, enveloped or hermetically sealed parts: not conductively connected to the mains: clearances and creepage distances as in table 12	None	N
13.8	Parts filled with insulating compound, meeting the requirements of 8.8	None	N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
14	COMPONENTS		
14.1	Resistors		N
	a) Resistors between hazardous live parts and accessible metal parts	None	N
	b) Resistors, other than between hazardous live parts and accessible parts	(Evaluated by CB test report of SMPS board) 1) IP-231135A - RX801S: 0.47 Mohm, 1/2W 2) SIP400B - RX801: 0.56 Mohm, 1/2W	P
	b) Resistors separately approved .....		N
14.2	Capacitors and RC units		P
	Capacitors separately approved	Yes (Evaluated by CB test report of SMPS board)	P
14.2.1	Y capacitors tested to IEC 60384-14, 2 <sup>nd</sup> edition ..	(Evaluated by CB test report of SMPS board) 1) IP-231135A - CY801S, CY802S: Max. 470 pF, Y1 - CM856: Max. 1500pF, Y1 - Surge observer: SA801(Opti.) 2) SIP400B: - CY821, CY822: 100pF, 200pF or 470 pF, Y1 or Y2 - CY811: 100pF, 220pF or 470 pF, Y1 - CY812: 1000pF or 1500 pF, Y1 - Surge observer: SX801(Opti.)	P
14.2.2	X capacitors tested to IEC 60384-14, 2 <sup>nd</sup> edition ..	(Evaluated by CB test report of SMPS board) 1) IP-231135A - CX801S: Max. 1.0 uF/250V, X2 - CX802S, CX803S: Max. 0.47 uF/250V, X2 2) SIP400B: - CX801: 0.1uF, 0.22uF, 0.33uF, 0.47uF, 0.68 uF/250V, X2 - CX802, CX803: 0.1uF, 0.22uF, 0.33uF, 0.47uF/250V, X2	P
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2 .....	No such capacitors	N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
14.2.5	Capacitors with volume exceeding 1750 mm <sup>3</sup> , where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better .....	(Evaluated by CB test report of SMPS board)	N
	Capacitors with volume exceeding 1750 mm <sup>3</sup> , mounted closer to a potential ignition source than table 5 permits: compliance with IEC 60 384-1, 4.38 category B or better .....	(Evaluated by CB test report of SMPS board)	P
	Shielded by a barrier to V-0 or metal .....		N
14.3	Inductors and windings		P
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4		N
14.3.1	Transformers and inductors marked with manufacturer's name and type .....	(Evaluated by CB test report of SMPS board) 1) IP-231135A - TM801S: IP-4S VM - TB801S: IP-STD STB - TI801S: IP-40S INV - TI802S: IP-STD PUL - TM802S: IP-40-PFC - LX801S, LX802S: CV940120SE 2) SIP400B - TM801: 110010ND - TS801: 210006HD - TI802: 210005HD - TI801: TMS92267CT - LP801: 110007ND - LX801, LX802: CV940120S	P
	Transformers and inductors separately approved :	No	N
14.3.2	General	Isolating transformer	P
14.3.3	Constructional requirements		P
14.3.3.1	Clearances and creepage distances comply with clause 13	(Evaluated by CB test report of SMPS board)	P
14.3.3.2	Transformers meet the constructional requirements	(Evaluated by CB test report of SMPS board)	P
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation)	(Evaluated by CB test report of SMPS board)	P
	Coil formers and partition walls > 0,4 mm	(Evaluated by CB test report of SMPS board)	P
14.3.4.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions of 14.3.4.2 are met	Class II construction	N
14.3.4.3	Separating transformers with at least basic insulation		N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)	(Evaluated by CB test report of SMPS board)	P
	Coil formers and partition walls > 0,4 mm	(Evaluated by CB test report of SMPS board)	P
14.3.5.2	Class I transformers have adequate insulation between hazardous live parts and accessible conductive parts or those conductive parts or protective screens connected to a protective earth terminal	Class II construction	N
	Winding wires connected to protective earth have adequate current-carrying capacity		N
14.4	High voltage components	No high voltage components	N
	High-voltage components and assemblies: U > 4 kV (peak) separately approved		N
	Component meets category V-1 of IEC 60707		N
14.4.1	High voltage transformers and multipliers tested as part of the submission		N
14.4.2	High voltage assemblies and other parts tested as part of the submission		N
14.5	Protective devices		P
	Protective devices used within their ratings	(Evaluated by CB test report of SMPS board) 1) IP-231135A - FS801, FS802: T6.3AH 250V - FM801: T3.15AL 250V - FM802: T2.0AL 250V 2) SIP400B - FS801: T6.3AH 250V - FS802(Opti): T6.3AH 250V - FI801: T3.15AL 250V	P
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened	(Evaluated by CB test report of SMPS board)	P
14.5.1.1	a) Thermal cut-outs separately approved	No thermal cut-outs	N
	b) Thermal cut-outs tested as part of the submission		N
14.5.1.2	a) Thermal links separately approved	No thermal links	N
	b) Thermal links tested as part of the submission		N
14.5.1.3	Thermal devices re-settable by soldering		N
14.5.2.1	Fuse-links in the mains circuit according to IEC 60127	(Evaluated by CB test report of SMPS board)	P
14.5.2.2	Correct marking of fuse-links adjacent to holder ... :		P

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
14.5.2.3	Not possible to connect fuses in parallel .....		P
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool .....	In service area	N
14.5.3	PTC thermistors comply with IEC 60730-1	No PTC thermistor	N
	PTC devices (15 W) category V-1 or better		N
14.5.4	Circuit protectors have adequate breaking capacity and their position is correctly marked		N
14.6	Switches		P
14.6.1 a)	Separate testing to IEC 61058 including: 10 000 operations normal pollution suitability Resistance to heat and fire level 3 and V-0 compliance with annex G, G.1.1	(Evaluated by CB test report of SMPS board) 1) IP-231135A: RL811S 2) SIP400B: REL801	P
14.6.1 b)	Tested in the apparatus:		N
	Switch controlling > 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.3, 14.6.4 and V-0 in annex G, G.1.1		N
	Switch controlling > 0.2A with open contact voltage < 35 V (peak)/24 V dc complying with 14.6.3 and V-0 in annex G, G.1.1		N
	Switch controlling < 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.4 and V-0 in annex G, G.1.1		N
14.6.2	Switch tested to 14.6.1 b) constructed to IEC 61058-1 subclause 13.1 and has making/breaking action independent of speed of actuation		N
14.6.3	Switch tested to 14.6.1 b) compliant with IEC 61058-1 subclause 16.2.2 d) and m) not attaining excessive temperatures in use		N
14.6.4	Switch tested to 14.6.1 b) has adequate dielectric strength		N
14.6.5	Mains switch controlling mains socket outlets additional tests to IEC 60058-1		N
	Socket outlet current marking correct		N
14.7	Safety interlocks	No safety interlocks	N
	Safety interlocks to 2.8 of IEC 60950		N
14.8	Voltage setting devices	No voltage setting device	N
	Voltage setting device not likely to be changed accidentally		N
14.9	Motors	No motors	N
14.9.1	Endurance test on motors		N
	Motor start test		N

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Clause	Requirement – Test	Result - Remark	Verdict
	Dielectric strength test		N
14.9.2	Not adversely affected by oil or grease etc.		N
14.9.3	Protection against moving parts		N
14.9.4	Motors with phase-shifting capacitors, three-phase motors and series motors meet clause. B.8, B.9 and B.10 of IEC 60950, Annex B		N
14.10	Batteries	No batteries	N
14.10.1	Batteries mounted with no risk of accumulation of flammable gases		N
14.10.2	No possibility of recharging non-rechargeable batteries		N
14.10.3	Recharging currents and times within manufacturers limits		N
	Lithium batteries discharge and reverse currents within the manufacturers limits		N
14.10.4	Battery mould stress relief		N
14.10.5	Battery drop test		N
14.11	Optocouplers	(Evaluated by CB test report of SMPS board) 1) IP-231135A - PC801S, PC802S, PC803S and PC804S 2) SIP400B - PCS801, PCS802, PCM801 and PCI801	P
	Optocouplers comply with Cl. 8		P
	Internal and external dimensions to 13.1. or alternatively 13.6 (jointed insulation)		P
14.12	Surge suppression varistors	(Evaluated by CB test report of SMPS board) 1) IP-231135A - VX801S: Across MAINS lines after MAINS fuse - VX802S: Connected in series with SA801 between MAINS and P.E. after MAINS fuse, FS802. 2) SIP400B - VX801S: Across MAINS lines after MAINS fuse - VS802S(Opti.): Connected in series with SX801 between MAINS and P.E. after MAINS fuse, FS802.	P
	Comply with IEC 61051-2		P

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Clause	Requirement – Test	Result - Remark	Verdict
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus		N
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12		N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
15	TERMINALS		
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard	Mains plug, Appliance coupler and inlet (see appended component list)	P
15.1.2	Connectors for antenna, earth, audio, video or data:		P
	No risk of insertion in mains socket-outlets		P
	No risk of insertion into audio or video: outlets marked with the symbol of 5.2		N
15.1.3	Output terminals of a.c. adaptors or similar devices not compatible with household mains socket-outlets	No output terminal	N
15.2	Provision for protective earthing		P
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment		P
	Class I supply equipment with non-hazardous live output voltage: output circuit not connected to earth		N
	Protective earth conductors correctly coloured	Green/Yellow wire used	P
	Equipment with non-detachable mains cord provided with separate protective earth terminal near mains input		P
	Protective earth terminal resistant to corrosion	No risk of corrosion	P
	Earth resistance test: < 0,1 $\Omega$ at 25 A .....	0.01 $\Omega$	P
15.3	Terminals for external flexible cords and for permanent connection to the mains supply		N
15.3.1	Adequate terminals for connection of permanent wiring	No permanent wiring	N
15.3.2	Reliable connection of non-detachable cords:	Detachable cord provided	N
	Not soldered to conductors of a printed circuit board		N
	Adequate clearances and creepage distances between connections should a wire break away		N
	Wire secured by additional means to the conductor		N
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar		N
15.3.4	Soldered conductors wrapped around terminal prior to soldering or held in place by additional means		N
	Clamping of conductor and insulation if not soldered or held by screws		N



IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
15.3.5	Terminals allow connection of appropriate cross-sectional area of conductors, for the rated current of the equipment		N
15.3.6	Terminals to 15.3.3 have sizes required by table 16		N
15.3.7	Terminals clamp conductors between metal and have adequate pressure		N
	Terminals designed to avoid conductor slipping out when tightened or loosened		N
	Terminals adequately fixed to avoid loosening when the clamping is tightened or loosened and stress on internal wiring is avoided		N
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic		N
15.3.9	Termination of non-detachable cords: wires terminated near to each other		N
	Terminals located and shielded: test with 8 mm strand		N
15.4	Devices forming a part of the mains plug		N
15.4.1	No undue strain on mains socket-outlets	No device forming a part of the mains plug	N
15.4.2	Device complies with standard for dimensions of mains plugs		N
15.4.3	Device has adequate mechanical strength (tests a,b,c)		N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
16	EXTERNAL FLEXIBLE CORDS		
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords .....	Approved by IEC 60227 for PVC used sheathed type. (see appended component list)	P
	Non-detachable cords for Class I have green/yellow core for protective earth	Provided detachable cord	N
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment	3X1.0mm <sup>2</sup> or 3X0.75mm <sup>2</sup>	P
16.3	a) Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages, have adequate dielectric strength	No interconnection cords	N
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress (3.2 of IEC 60227-2)		N
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions	No interconnection cords	N
16.5	Adequate strain relief on external flexible cords	Detachable supply cord and appliance inlet used	N
	Not possible to push cord back into equipment		N
	Strain relief device unlikely to damage flexible cord		N
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor		P
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use	Provided detachable cords	N
16.7	Transportable musical instruments and amplifiers fitted with detachable cord set with appliance inlet to IEC 60320-1	Not transportable musical instruments	N
	Transportable musical instruments and amplifiers fitted with detachable cord sets or with means of stowage to protect the cord		N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
17	ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS		
17.1	Torque test to table 20:		P
	- screws into metal: 5 times		N
	- screws into non-metallic material: 10 times	Dia. 3.9mm, 1.2Nm	P
17.2	Correct introduction into female threads in non-metallic material		P
17.3	Cover fixing screws: captive		N
	Non-captive fixing screws: no hazard when replaced by a screw whose length is 10 times its diameter	Tested by length of 10 times diameter	P
17.4	No loosening of conductive parts carrying a current > 0,2 A	No permanently fixed parts	N
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A	No contact pressure	P
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder	No screw terminal	N
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous		N
17.8	Fixing devices for detachable legs or stands provided	No legs and stands	N
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected	No hazard after a pull of 2N	P

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

18	MECHANICAL STRENGTH OF PICTURE TUBES AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		
	Picture tube separately approved to IEC 61965:	No picture tube	N
	Picture tube separately approved to 18.1 .....		N
18.1	Picture tubes > 16 cm intrinsically protected		N
	Non-intrinsically protected tubes > 16 cm used with protective screen		N
18.2	Intrinsically protected tubes: tests on 12 samples		N
18.2.1	Samples subject to ageing: 6		N
18.2.2	Samples subject to implosion test: 6		N
18.2.3	Samples subject to mechanical strength test (steel ball): 6		N
18.3	Non-intrinsically protected tubes tested to 18.3		

19	STABILITY AND MECHANICAL HAZARDS		
	Mass of the equipment exceeding 7 kg .....	28.7 kg	P
	Apparatus intended to be fastened in place – suitable instructions	No	N
19.1	Test on a plane, inclined at 10° to the horizontal		P
19.2	100 N force applied vertically downwards		P
19.3	Apparatus mass > 25 kg or height > 1 M or supplied with cart or stand		P
19.4	Edges or corners not hazardous		P
19.5	Glass surfaces with an area exceeding 0,1 m² or maximum dimension > 450 mm, pass the test of 19.5.1	No glass surface	N
19.6	Wall or ceiling mountings adequate	Tested with 844N	P

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
20	RESISTANCE TO FIRE		
20.1	Electrical components and mechanical parts		P
	a) Exemption for components contained in an enclosure of material V-0 to IEC 60707 with openings not exceeding 1 mm in width		N
	b) Exemption for small components as defined in 20.1		P
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4	(Evaluated by CB test report of SMPS board)	P
20.1.2	Insulation of internal wiring working at voltages > 4 Kv or leaving an internal fire enclosure, not contributing to the spread of fire	<4 kV	N
20.1.3	Material of printed circuit boards on which the available power exceeds 15 W at a voltage between 50 V and 400 V (peak) a.c. or d.c. meets V-1 or better to IEC60707, unless used in a fire enclosure		N
	Material of printed circuit boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets V-0 to IEC 60707	Approved by UL94V-0	P
20.1.4	Components and parts not covered by 20.1.1, 20.1.2 and 20.1.3 (other than fire enclosures) mounted nearer to a potential ignition source than the distances in Table 21 comply with the relevant flammability category in Table 21	(Evaluated by CB test report of SMPS board)	P
	Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13		N
20.2	Fire enclosure		N
20.2.1	Potential ignition sources with open circuit voltage > 4 kV (peak) a.c. or d.c. contained in a fire enclosure to V-1	<4kV	N
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled		N
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure		N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

A	APPENDIX A, ADDITIONAL REQUIREMENTS FOR APPARATUS WITH PROTECTION AGAINST SPLASHING WATER		
A.5.1	j) Marked with IPX4 (IEC 60529), 5.4.1 a) does not apply		N
A.10.2.1	Enclosure provides protection against splashing water		N
A.10.2.2	Humidity treatment carried out for 7 days		N

B	APPENDIX B, APPARATUS TO BE CONNECTED TO THE TELECOMMUNICATION NETWORKS		
	Complies with IEC 62151 clause 1		N
	Complies with IEC 62151 clause 2		N
	Complies with IEC 62151 clause 3 but with 3.5.4 modified to 2.4.10 of this standard		N
	Complies with IEC 62151 clause 4 but with 4.1.2, 4.1.3 and 4.2.1.2 modified in accordance with annex B of this standard		N
	Complies with IEC 62151 clause 5 but with 5.3.1 modified in accordance with annex B of this standard		N
	Complies with IEC 62151 clause 6		N
	Complies with IEC 62151 clause 7		N
	Complies with IEC 62151 annex A, B and C		N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

7.1	TABLE: temperature rise measurements “TU40EO” with IP-231135A		P
	Power consumption in the OFF/Stand-by	0.9W	—
	Position of the functional switch (W) ..... :		—

Operating conditions				
- Video: Color bar video pattern with sine wave audio signal input.				
- Max. Brightness and contrast mode.				
- 1/8 power of max non-clipped output power , 8Ω load connected				
Un (V)	Freq(Hz)	In (A)	Pn (W)	Pout (W)
90	60	2.71	241.5	Main Left & Right : 0.81W
100	60	2.4	238.0	
198	60	1.19	226.5	
220	60	1.084	226.2	
240	60	1.0	225.5	
264	60	0.917	224.8	
90	50	2.67	239.7	
100	50	2.39	236.8	
198	50	1.18	226.2	
220	50	1.075	225.8	
240	50	0.991	225.3	
264	50	0.91	224.9	
	Loudspeaker impedance (Ω) ..... :	8Ω		—
	Several loudspeaker systems	-		
	Marking of loudspeaker terminals	8Ω, 10W		

Monitored point:	dT (K)			Limit dT (K)
	90V / 60Hz	198V/60Hz	264V/60Hz	
1 Mains Connector	7.3	4.4	4.3	-/-
2 Primary Wiring	3.3	1.8	1.8	-/-
3 PCB at Mains Fuse	8.5	5.3	5.4	85/75
4 LX801S Winding	24.3	11.4	10.2	85/75
5 LX802S Winding	33.0	18.2	15.0	85/75
6 HS801	32.1	17.7	15.3	85/75
7 HS802	47.6	20.5	20.5	85/75
8 TM802S Core	28.6	19.5	16.7	85/75

IEC / EN 60065					
Clause	Requirement – Test			Result - Remark	Verdict
Monitored point:	dT (K)			Limit dT (K)	
	90V / 60Hz	198V/60Hz	264V/60Hz		
9 CP810 Body	30.5	23.5	22.6	-/-	
10 HS803	28.9	28.9	29.2	85/75	
11 HS804	29.2	25.9	26.8	85/75	
12 HS805	30.7	32.5	32.8	85/75	
13 TB801S Core	29.7	20.1	19.6	75/65	
14 TB801S Winding	31.6	21.8	21.4	75/65	
15 TM801S Core	31.1	26.8	26.8	75/65	
16 TM801S Winding	38.8	30.1	30.0	75/65	
17 PCB at TM801S	31.3	27.4	27.7	85/75	
18 TI802S Core	20.9	21.5	21.5	75/65	
19 TI802S Winding	23.7	24.0	24.1	75/65	
20 TI801S Core	30.2	30.5	30.5	75/65	
21 TI801S Winding	44.0	44.3	44.4	75/65	
22 Internal Surface of Enclosure	25.0	21.5	21.2	60/50	
23 External Surface of Enclosure	20.1	7.6	7.9	60/50	
24 Ambient(°C)	24.8	24.9	24.3	---	
	Winding temperature rise measurements				N
	Ambient temperature t1 (°C) .....				—
	Ambient temperature t2 (°C) .....				—
Temperature rise dT of winding:	R <sub>1</sub> (Ω)	R <sub>2</sub> (Ω)	dT (K)	Limit dT (K)	Insulation class
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IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

7.1	TABLE: temperature rise measurements “TU40EO” with SIP400B		P
	Power consumption in the OFF/Stand-by	0.9W	—
	Position of the functional switch (W) ..... :		—

**Operating conditions**

- Video: Color bar video pattern with sine wave audio signal input.

- Max. Brightness and contrast mode.

- 1/8 power of max non-clipped output power , 8Ω load connected

Un (V)	Freq(Hz)	In (A)	Pn (W)	Pout (W)
90	60	2.483	221.4	Main Left & Right : 0.81W
100	60	2.206	219.0	
198	60	1.0768	210.1	
220	60	0.976	209.9	
240	60	0.899	209.4	
264	60	0.825	208.2	
90	50	2.470	220.4	
100	50	2.195	218.0	
198	50	1.069	209.5	
220	50	0.967	209.3	
240	50	0.889	208.9	
264	50	0.817	208.0	

	Loudspeaker impedance (Ω) ..... :	8Ω	—
	Several loudspeaker systems	-	
	Marking of loudspeaker terminals	8Ω, 10W	

Monitored point:	dT (K)			Limit dT (K)
	90V / 60Hz	198V/60Hz	264V/60Hz	
1 Mains Connector	6.2	5.4	5.4	-/-
2 Primary Wiring	3.4	2.7	2.6	-/-
3 PCB at Mains Fuse	4.2	4.0	4.1	85/75
4 LX801 Winding	14.3	8.5	7.5	85/75
5 LX802 Winding	20.9	15.3	11.5	85/75
6 HS801	25.8	14.9	12.2	85/75
7 HS802	30.2	15.9	15.6	85/75
8 LP801 Core	18.8	16.4	14.7	85/75

IEC / EN 60065					
Clause	Requirement – Test			Result - Remark	Verdict
Monitored point:		dT (K)			Limit dT (K)
		90V / 60Hz	198V/60Hz	264V/60Hz	
9	CP809 Body	18.8	16.1	15.0	-/-
10	HS804	17.5	18.3	18.0	85/75
11	HS805	26.1	25.5	25.1	85/75
12	HS803	26.2	26.6	26.4	85/75
13	TS801 Core	21.2	18.0	17.5	75/65
14	TS801 Winding	22.8	19.2	18.7	75/65
15	TM801 Core	23.9	21.6	21.2	75/65
16	TM801 Winding	23.7	21.4	21.0	75/65
17	PCB at TM801	26.3	24.5	24.0	85/75
18	TI802 Core	11.7	12.5	12.5	75/65
19	TI802 Winding	13.3	14.1	14.2	75/65
20	TI801 Core	21.4	21.9	21.8	75/65
21	TI801 Winding	23.5	24.2	24.1	75/65
22	Internal Surface of Enclosure	16.3	15.8	15.5	60/50
23	External Surface of Enclosure	9.7	11.4	10.7	60/50
24	Ambient(°C)	24.8	24.9	24.3	---
	Winding temperature rise measurements				N
	Ambient temperature t1 (°C) .....				—
	Ambient temperature t2 (°C) .....				—
Temperature rise dT of winding:		R <sub>1</sub> (Ω)	R <sub>2</sub> (Ω)	dT (K)	Limit dT (K)
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					Insulation class

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
7.1	TABLE: rated input power measurements of model no. BP40EO with SIP400B SMPS power board		P
	Power consumption in the OFF/Stand-by	0.9W	—
	Position of the functional switch (W) ..... :		—
Operating conditions			
- Video: Color bar video pattern with sine wave audio signal input.			
- Max. Brightness and contrast mode.			
- 1/8 power of max non-clipped output power , 8Ω load connected			
Un (V)	Freq(Hz)	In (A)	Pn (W)
90	60	2.054	183.1
100	60	1.835	181.4
120	60	1.520	179.06
198	60	0.950	174.88
220	60	0.866	174.20
240	60	0.815	174.15
254	60	0.787	174.04
264	60	0.770	174.14
90	50	2.034	182.61
100	50	1.829	181.07
120	50	1.515	178.75
198	50	0.944	174.81
220	50	0.861	174.29
240	50	0.809	174.25
254	50	0.781	174.22
264	50	0.761	174.1
Main Left & Right : 0.81W			
	Loudspeaker impedance (Ω) ..... :	8Ω	—
	Several loudspeaker systems	-	
	Marking of loudspeaker terminals	8Ω, 10W	

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

10.3	TABLE: insulation resistance measurements		P
Insulation resistance R between:		R (MΩ)	Required R (MΩ)
Between mains poles (primary fuse disconnected)		> 100	2
Between parts separated by basic or supplementary insulation		> 100	2
Between parts separated by double or reinforced insulation		> 100	4

10.3	TABLE: electric strength measurements		P
Test voltage applied between:		Test voltage (V)	Breakdown
Mains poles (primary fuse disconnected)		2121Vdc	No
Between parts separated by basic or supplementary insulation		2121Vdc	No
Between parts separated by double or reinforced insulation		4242Vdc	No
Between parts separated by double or reinforced insulation (On PCB for TB801S transformer related circuits) : IP-231135A		4242Vdc	No
Between parts separated by double or reinforced insulation (On PCB for TM801S transformer related circuits) : IP-231135A		4242Vdc	No
Between parts separated by double or reinforced insulation (On PCB for TI801S transformer related circuits) : IP-231135A		6300Vdc	No
Between parts separated by double or reinforced insulation (On PCB for TI802S transformer related circuits) : IP-231135A		4242Vdc	No
Between parts separated by double or reinforced insulation (On PCB for TS801 transformer related circuits) : SIP400B		4242Vdc	No
Between parts separated by double or reinforced insulation (On PCB for TM801 transformer related circuits) : SIP400B		4242Vdc	No
Between parts separated by double or reinforced insulation (On PCB for TI801 transformer related circuits) : SIP400B		6300Vdc	No
Between parts separated by double or reinforced insulation (On PCB for TI802 transformer related circuits) : SIP400B		4242Vdc	No

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

11.1	TABLE: summary of fault condition tests : IP-231135A					P
	Voltage (V) 0,9 or 1,1 times rated voltage ..... : 264V					—
	Ambient temperature (°C) ..... : 23 – 25.5 (°C)					—
No	Component No	Fault	Test voltage (V)	Test Time	Current consumption (A)	Result
1	BD801S (~,+)	S-c	264	< 1sec	0	FS801, FS802 opened immediately. BD801S damaged. No hazard.
2	BD801S (~,-)	S-c	264	< 1sec	0	FS801, FS802 opened immediately. BD801S damaged. No hazard.
3	DP803	S-c	264	< 1sec	0	FS801, FS802 opened immediately. QP802S, BD801S, NT811S damaged. No hazard
4	QP802S (G-D)	S-c	264	< 1sec	0	FS801 , FS802 opened immediately. BD801S, QP802S, UP801 damaged . No hazard
5	QP802S (S-D)	S-c	264	< 1sec	0	FS801, FS802 opened immediately. BD801S damaged. No hazard.
6	CP810	S-c	264	< 1sec	0	FS801, FS802 opened immediately. BD801S damaged. No hazard.
7	QM801 (G-D)	S-c	264	< 1sec	0	FS801, FS802, FM802 opened immediately. QM801, BD801S, DM802, UM801S Damaged. Rm808, RM804, RM802 opened. No hazard.
8	QM801 (D-S)	S-c	264	< 1sec	0	FS801, FS802, FM802 opened immetely. D801S, Qm801, UM801S damaged. RM808, RM802 opened. No damage
9	MI801S (G-D)	S-c	264	< 1sec	0	FS801, FS802, FM801 opened immediately. BD801S, MI801S, MI802S damaged. No hazard.
10	MI801S (S-D)	S-c	264	< 1sec	0	FS801, FS802, FM801 opened immediately. MI802S damaged. No hazard.
11	DI822	S-c	264	< 1sec	0	FS801, FM801 opened immediately. MI802S damaged. No hazard.
12	CI812	S-c	264	20 min	0.32	Inveter output shut down immediately. No hazard
13	CI813	S-c	264	20 min	0.32	Inveter output shut down immediately. No hazard

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

11.1	TABLE: summary of fault condition tests : SIP400B					P
	Voltage (V) 0,9 or 1,1 times rated voltage ..... : 264V					—
	Ambient temperature (°C) ..... : 23 – 25.5 (°C)					—
No	Component No	Fault	Test voltage (V)	Test Time	Current consumption (A)	Result
1	DI813	S-c	264	< 1 sec	0	FS801, Fi801 opened immediately. QP801, QP802, Qi801, Qi802, DI804, Qi807 damaged. No hazard.
2	ICM801 (1-4)	S-c	264	< 1 sec	0	FS801 opened immediately. ZDM802, ICM801, ZDM801, DP801, DP802, QP801, QP802 damaged. No hazard.
3	BD801 (~,+)	S-c	264	< 1 sec	0	FS801 opened immediately. No hazard.
4	BD801 (~,-)	S-c	264	< 1 sec	0	FS801 opened immediately. No hazard.
5	CP809	S-c	264	< 1 sec	0	FS801 opened immediately. No hazard
6	DP801	S-c	264	< 1 sec	0	FS801 opened immediately. QP802, DP802 damaged. No hazard
7	DP802	S-c	264	< 1 sec	0	FS801 opened immediately. QP801, QP802 damaged., No hazard.
8	QP802 (G-D)	S-c	264	< 1 sec	0	FS801 opened immediately. QP802, RP809, RP801, RP825 damaged. No hazard.
9	QP801 (G-D)	S-c	264	< 1 sec	0	FS801 opened immediately. QP801, RP826, ICP801 damaged. No hazard.
10	QP801 (D-S)	S-c	264	< 1 sec	0	FS801 opened immediately. No hazard.
11	CI820	S-c	264	20 min	0.35	Inveter output shut down immediately. No hazard
12	CI824	S-c	264	20 min	0.35	Inveter output shut down immediately. No hazard

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

11.2	TABLE: Fault Condition test “TU40EO” – IP-231135A		P
	Power consumption in the OFF/Stand-by	0.9W	
	Position of the functional switch (W) ..... : -		---

**Operating conditions**

- Video: Color bar video pattern with sine wave audio signal input.

- Max. Brightness and contrast mode.

- 1/8 power of max non-clipped output power , 8Ω load connected

No.	Condition	U(V)	In (A)	Pn (W)	Pout (W)
1	Blocked openings	264	0.917	224.8	Main Left & Right : 0.81W
2	Max non-clipped output	264	0.961	237.0	Main Left & Right : 6.5W
	Loudspeaker impedance (Ω) ..... : 8Ω				—
	Several loudspeaker systems			-	
	Marking of loudspeaker terminals			8Ω, 10W	

monitored point:		dT (K)		required dT (K) Moderate / Tropical
		No.1	No.2	
1	Mains Connector	12.7	4.5	110/100
2	Primary Wiring	7.1	1.9	110/100
3	PCB at Mains Fuse	12.4	5.5	110/100
4	LX801S Winding	20.5	10.3	110/100
5	LX802S Winding	28.0	15.0	110/100
6	HS801	26.8	15.4	140/130
7	HS802	32.9	21.0	140/130
8	TM802S Core	26.3	16.8	140/130
9	CP810 Body	33.1	22.7	140/130
10	HS803	39.2	29.1	140/130
11	HS804	41.3	26.0	140/130
12	HS805	45.2	32.3	140/130
13	TB801S Core	32.5	19.8	140/130
14	TB801S Winding	33.7	21.5	140/130
15	TM801S Core	37.8	26.9	140/130
16	TM801S Winding	40.7	30.1	140/130
17	PCB at TM801S	38.0	27.9	140/130
18	TI802S Core	33.6	21.2	150/140

IEC / EN 60065							
Clause	Requirement – Test			Result - Remark			Verdict
19	TI802S Winding			35.0	24.1		150/140
20	TI801S Core			41.5	30.4		110/100
21	TI801S Winding			55.0	44.5		-/-
22	Internal Surface of Enclosure			28.5	21.2		-/-
23	External Surface of Enclosure			14.1	8.1		-/-
24	Ambient(°C)			25.2	24.2		110/100
	Winding temperature rise measurements						N
temperature rise dT of winding:		T <sub>1</sub> (°C)	T <sub>2</sub> (°C)	R <sub>1</sub> (Ω)	R <sub>2</sub> (Ω)	dT (K)	required dT (K)
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							insulation class



IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

11.2	TABLE: Fault Condition test “TU40EO” – SIP400B		P
	Power consumption in the OFF/Stand-by	0.9W	
	Position of the functional switch (W) ..... : -		---

Operating conditions					
- Video: Color bar video pattern with sine wave audio signal input.					
- Max. Brightness and contrast mode.					
- 1/8 power of max non-clipped output power , 8Ω load connected					
No.	Condition	U(V)	In (A)	Pn (W)	Pout (W)
1	Blocked openings	264	0.825	208.2	Main Left & Right : 0.81W
2	Max non-clipped output	264	0.862	219.3	Main Left & Right : 6.5W
	Loudspeaker impedance (Ω) .....	8Ω			—
	Several loudspeaker systems	-			
	Marking of loudspeaker terminals	8Ω, 10W			
monitored point:			dT (K)		required dT (K) Moderate / Tropical
			No.1	No.2	
1	Mains Connector		12.9	5.3	110/100
2	Primary Wiring		7.0	2.4	110/100
3	PCB at Mains Fuse		10.7	4.3	110/100
4	LX801 Winding		15.9	7.5	110/100
5	LX802 Winding		22.7	11.3	110/100
6	HS801		22.6	12.3	140/130
7	HS802		27.7	15.6	140/130
8	LP801 Core		24.3	14.6	140/130
9	CP809 Body		24.7	14.9	140/130
10	HS804		27.8	18.1	140/130
11	HS805		39.9	25.2	140/130
12	HS803		38.5	26.4	150/140
13	TS801 Core		30.6	17.4	150/140
14	TS801 Winding		31.9	18.7	140/130
15	TM801 Core		33.4	21.1	140/130
16	TM801 Winding		33.1	21.0	140/130
17	PCB at TM801		32.5	24.0	140/130
18	TI802 Core		24.5	12.6	150/140

IEC / EN 60065							
Clause	Requirement – Test			Result - Remark			Verdict
19	TI802 Winding			25.6	14.2		150/140
20	TI801 Core			32.0	21.5		110/100
21	TI801 Winding			34.2	23.9		-/-
22	Internal Surface of Enclosure			19.0	15.2		-/-
23	External Surface of Enclosure			10.9	10.0		-/-
24	Ambient(°C)			25.2	24.2		-/-
	Winding temperature rise measurements						N
temperature rise dT of winding:		T <sub>1</sub> (°C)	T <sub>2</sub> (°C)	R <sub>1</sub> (Ω)	R <sub>2</sub> (Ω)	dT (K)	required dT (K) insulation class
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IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

13.3 and 13.4	TABLE: clearance and creepage distance measurements					P	
<div>- Pollution degree: 2</div> <div>- Material group: IIIa/b</div> <div>- 2 N for internal parts</div> <div>- 30 N for external parts</div> <div>- Clearance and creepage distance in internal SMPS power boards have been evaluated by CB test reports, so additional clearance and creepage distance have measured as follow between SMPS power board and protective earth part include metal chassis through out conductors on PWB or air cap.</div>							
clearance cl and creepage distance dcr at/of:		Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)
<IP-231135A>							
1.	MAINS – P.E. GND	340	240	2.0	3.6	2.5	3.6
2.	TM801 Pri. – P.E.GND	520	341	2.2	7.5	3.6	7.5
3.	TB801 Pri. – P.E.GND	520	307	2.2	6.5	3.3	6.5
4.	TI801 Pri. – P.E.GND	2680	1400	5.7	5.9	14.0	16.0
5.	TI802 Pri. – P.E. GND	490	255	2.2	6.4	2.6	6.4
<SIP400B>							
6.	MAINS – P.E. GND	340	240	2.0	3.0	2.5	3.0
7.	TM801 Pri. – P.E.GND	520	334	2.2	11.4	3.4	11.4
8.	TS801 Pri. – P.E.GND	520	315	2.2	8.2	3.4	8.2
9.	TI801 Pri. – P.E.GND	450	256	2.1	5.8	2.6	10.2
10.	TI802 Pri. – P.E. GND	420	244	2.0	5.6	2.5	10.3

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

14	TABLE: list of critical components and materials					P
Component	Manufacturer / trademark	Type/model	Value / rating	Standard	Approval / Reference	
Power plug	Longwell	LP-33	10A,16A/250V~	IEC60884-1	VDE	
Appliance Connector	Longwell	LP-13	10A,16A/250V~	IEC60320 C13	VDE	
Power cords	Lomgwell	HO5VV-F	0.75mm <sup>2</sup> X 3 or 1.0mm <sup>2</sup> X 3	IEC 60227	VDE	
Remark) A various suitable certified power supply cord set can be added in the country where the apparatus is sold.						
Power supply	Samsung Electro mechanics	IP-231135A	4.0A, 100-240V AC 50/60Hz Cl.1  Outputs: +5.2V/0.5A/ +5.4V/4.0A, 12.0V /1.2A, 13.0V /2.0A, 2100Vac /100mA	IEC60065	NEMKO	
Alternate	Hansol LCD Inc.	SIP400B	4.0A, 100-240V AC 50/60Hz Cl.1  Outputs: STB DC5.2V/0.3A DC 5.4V/3.5A DC 12V/1.0A DC 13V /1.5A 1500Vrms/72mA rms	IEC60065	UL-DEMKO	
LCD Panel for 240W power consumption	Samsung	LTA400H+	12V 4.5A	IEC 60065	Tested in appliance	
LCD Panel for 190W power consumption	Samsung	LTA400W+	5.5V, 4A			
	AU Optronics	T400XW+	24V 7.3A			
Appliance inlet	U LIM Hua Feng Dong IL Inalways I-Sheng Solteam Bae-eun	UPS-00-004 HF-301 DAC-11 / 14 0714 7014 ST-01 BCP-031	10A, 16A/250V	IEC 60320	VDE	
PCB material	Various	Various	Min V-0	UL94	UL	

IEC / EN 60065					
Clause	Requirement – Test		Result - Remark		Verdict
Component	Manufacturer / trademark	Type/model	Value / rating	Standard	Approval / Reference
Enclosure Mtl.	BASF	8930	Approved : all color 1.5mm VICAT:87(°C)	UL94 V2	E108538
		476L	Approved : all color 1.5/3.0mm VICAT:90(°C)	UL94 HB	E41871
		495F	Approved : all color 1.5/3.0mm VICAT:90(°C)	UL94 HB	E41871
		GP-35	Approved : all color 1.5/3.0mm VICAT:95(°C)	UL94 HB	E41871
		KR2191WU	Approved : all color 1.5/2.2mm VICAT:82(°C)	UL94 V0	E41871
	Cheil Industries	HF-0660+	Approved : all color 1.5/3.0mm VICAT:97(°C)	UL94 HB	E115797
		HF-0680+	Approved : all color 1.5/3.0mm VICAT:96(°C)	UL94 HB	E115797
		HF-0690+	Approved : all color 1.5/3.0mm VICAT:94(°C)	UL94 HB	E115797
		HF-1690+	Approved : all color 1.5/3.0mm VICAT:85(°C)	UL94 HB	E115797
		HF-0760GP	Approved : all color 1.5/3.0mm VICAT:96(°C)	UL94 HB	E115797
		NH-0953	Approved : all color 2.1/3.0mm VICAT:86(°C)	UL94 5V	E115797
		NH-1000T+	Approved : all color 2.0/3.0mm VICAT:90(°C)	UL94 5V	E115797
		NH-1017	Approved : all color 2.0/3.0mm VICAT:95(°C)	UL94 5V	E115797

IEC / EN 60065					
Clause	Requirement – Test		Result - Remark		Verdict
Component	Manufacturer / trademark	Type/model	Value / rating	Standard	Approval / Reference
		SF-0500	Approved : all color 1.5/3.0mm VICAT:103(°C)	UL94 HB	E115797
		SF-0507	Approved : all color 1.5/3.0mm VICAT:97(°C)	UL94 HB	E115797
		TP-1002	Approved : all color 3.0mm VICAT:145(°C)	UL94 V0	E115797
		UT-0510+	Approved : all color 1.5/3.0mm VICAT:93(°C)	UL94 HB	E115797
		VE-0860+	Approved : all color 1.5/2.5mm VICAT:100(°C)	UL94 V0	E115797
		VE-0812+	Approved : all color 2.5/3.0mm VICAT:91(°C)	UL94 V0	E115797
		VH-0854+	Approved : all color 2.1/2.5mm VICAT:84(°C)	UL94 V0	E115797
		VE-0855+	Approved : all color 2.1/2.5mm VICAT:90(°C)	UL94 V0	E115797
		VE-0856+	Approved : all color 1.5/2.0mm VICAT:90(°C)	UL94 V0	E115797
		VE-1872+	Approved : all color 2.5/3.3mm VICAT:81(°C)	UL94 V0	E115797
		VE-1897+	Approved : all color 1.5/3.0mm VICAT:81(°C)	UL94 V0	E115797
		VH-0810+	Approved : all color 2.5/3.0mm VICAT:87(°C)	UL94 V0	E115797
		VH-0819+	Approved : all color 2.1mm VICAT:85(°C)	UL94 V0	E115797

IEC / EN 60065					
Clause	Requirement – Test		Result - Remark		Verdict
Component	Manufacturer / trademark	Type/model	Value / rating	Standard	Approval / Reference
		VL-1823+	Approved : all color 1.5/3.0mm VICAT:85(°C)	UL94 V2	E115797
		VL-1827+	Approved : all color 1.5/3.0mm VICAT:85(°C)	UL94 V2	E115797
	Dongbu Hannong	F-644	Approved : all color 1.5/3.0mm VICAT:97(°C)	UL94 V0	E120540
		F-654	Approved : all color 1.5/3.0mm VICAT:93(°C)	UL94 V0	E120540
		H-663	Approved : all color 1.5/3.0mm VICAT:92(°C)	UL94 HB	E120540
	Kumho Chemical	ABS-780	Approved : all color 1.5/3.0mm VICAT:92(°C)	UL94 HB	E65424
		HFA-707	Approved : all color 1.5/3.0mm VICAT:92(°C)	UL94 HB	E65424
		HFH-400NS	Approved : all color 1.5/3.0mm VICAT:92(°C)	UL94 HB	E65424
		HFH-403	Approved : all color 1.5/3.0mm VICAT:92(°C)	UL94 HB	E65424
		HFH-407	Approved : all color 1.5/3.0mm VICAT:92(°C)	UL94 HB	E65424
		HI425TV	Approved : all color 1.5/3.0mm VICAT:92(°C)	UL94 HB	E65424
	LG Chemical	403AF	Approved : all color 1.6/3.0mm VICAT:83(°C)	UL94 V2	E67171
		40AF	Approved : all color 1.5/3.0mm VICAT:85(°C)	UL94 V0	E67171

IEC / EN 60065					
Clause	Requirement – Test		Result - Remark		Verdict
Component	Manufacturer / trademark	Type/model	Value / rating	Standard	Approval / Reference
		60HR	Approved : all color 1.5/3.0mm VICAT:91(°C)	UL94 HB	E67171
		AF-312	Approved : all color 1.5/2.0mm VICAT:84(°C)	UL94 V0	E248280
		AF-342	Approved : all color 1.5/2.0mm VICAT:88(°C)	UL94 V0	E67171
		HF-350+	Approved : all color 1.5/3.0mm VICAT:88(°C)	UL94 HB	E248280
		TR557	Approved : all color 1.5/3.0mm VICAT:84(°C)	UL94 HB	E67171
	Samyang	200NH	Approved : all color 1.7mm VICAT:83(°C)	UL94 5V	E121254
		210NHF	Approved : all color 2.5mm VICAT:90(°C)	UL94 5V	E121254
		3025N1	Approved : all color 1.5/3.0mm VICAT:144(°C)	UL94 V0	E121254
		3020IR	Approved : all color 1.5/3.0mm VICAT:144(°C)	UL94 V2	E121254
	1) an asterisk indicates a mark which assures the agreed level of surveillance.				



IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
ZB	ANNEX ZB TO EN 60 065, SPECIAL NATIONAL CONDITIONS		P
2.6.1	DK: certain types of Class I apparatus, see 15.1.1, may be provided with a plug not establishing earthing continuity when inserted in Danish socket-outlets	Noticed	N
13.3.1	NO: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault.	Noticed	N
15.1.1	DK: mains cord for single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to Heavy Current Regulations Section 107-2-D1		N
	DK: Class I equipment with socket-outlets with earthing contact, or which are intended to be used in locations where protection against indirect contact is required shall be provided with a plug in compliance with Standard Sheet DK 2-1a	No socket-outlets	N
	DK: socket-outlets for providing power to Class II equipment with a rated current of 2,5 A shall have dimensions according to the drawing on page 131 of EN 60 065:98 other dimensions shall be to IEC 60 083 Standard Sheet C 1a for portable socket-outlets	No socket-outlets	N
	DK: mains socket-outlets with earthing contact shall comply with Heavy Current Regulations Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a	No socket-outlets	N
	GB: equipment fitted with a flexible cable or cord provided with a 13A BS 1363 plug as in Statutory Instrument 1768:94		N
	IE: equipment fitted with a flexible cable or cord provided with a 13 A plug in accordance with Statutory Instrument 525:97		N
	NO: mains socket-outlets on Class II equipment meet CEE Publication 7 with the following amendments:		N
	- dimensions 2,5 A, 250 V socket-outlets shall comply with Standard Sheet 1 page 132 of EN 60 065:98	No socket-outlets	N
	- mechanical strength 2,5 A, 250 V socket-outlets tested as specified in EN 60 065, 12.1.3		N
	- protecting rim also tested		N
	NO: method b) of 8.1 is not permitted. Double or reinforced insulation is required between parts connected to the mains and parts connected to the public telecommunications network	No TNV circuit	N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict
J.2	NO: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault.		N

ZC	ANNEX ZC TO EN 60 065, A-DEVIATIONS		N
5	DE: additional markings required in German language:		N
	- cathode ray tubes with an accelerating voltage between 20 kV and 30 kV (marking on the tube)	No cathode ray tube	N
	- TV receivers whose picture tube has an accelerating voltage between 20 kV and 30 kV		N
	- TV receivers whose picture tube has an accelerating voltage greater than 30 kV		N
	- TV receivers whose picture tube has an accelerating voltage less than 20 kV		N
5.1	IT: additional markings on the outside of the TV receiver in Italian language		N
	IT: user instructions in Italian language including a conformity declaration		N
	IT: certification number on the back cover		N
14	SE: Switches containing mercury such as thermostats, relays and level controllers are not allowed.	No mercury	N

IEC / EN 60065			
Clause	Requirement – Test	Result - Remark	Verdict

**National deviations for Singapore**

4	All apparatus must be tested to 230 Vac	Include 230 Vac	P
4.3.13	Apparatus fitted with voltage selector switch must be tested as follows: Connect apparatus to 230 V ac mains with voltage selector switch to settings not suitable for operation at 230 V ac.	No voltage selector.	N
5.3	Circuit diagrams must be indicated with component values.	Schematic included in CB report.	P
	Circuit diagrams of electronic modules in the apparatus must be provided.	Schematic included in CB report.	P
7.1, 11.2	Permissible temperature rises of 10K less than those specified in Table 2 are required.	Meets tropical limits	P
10.2	Humidity treatment. Adopt the testing conditions designed for tropical conditions.	5 days	P
15.1.1	All Class I apparatus must be fitted with 3-pin mains plugs that comply with SS 145/SS 472 that are registered with the Safety Authority		N
	a) All Class II apparatus must be fitted with 2-pin mains plugs (Appendix W) that comply with IEC 83:1975 (Standard C5, Version II) or EN 50075.	Class I equipment	N
	b) Class II apparatus that are fitted with 3-pin mains plugs must use plugs that comply with SS 145 and registered with the Safety Authority.		N
15.3	Apparatus $\geq 3$ kW must be connected to fixed wiring. All connection to fixed wiring must be in accordance with Code of Practice CP5.	$< 3$ kW	N
16	Detachable power cord set must be listed in the test report critical component list.		N
Misc.	Apparatus enclosure which is shaped and decorated so that it is likely to be treated as a toy by children, shall not be accepted for certification and registration.	Not shaped like toy.	P

**<Photo 1 > TU40EO – Front View**



**<Photo 2 > BP40EO- Front View**





**<Photo 3 > TU40EO – Rear view**

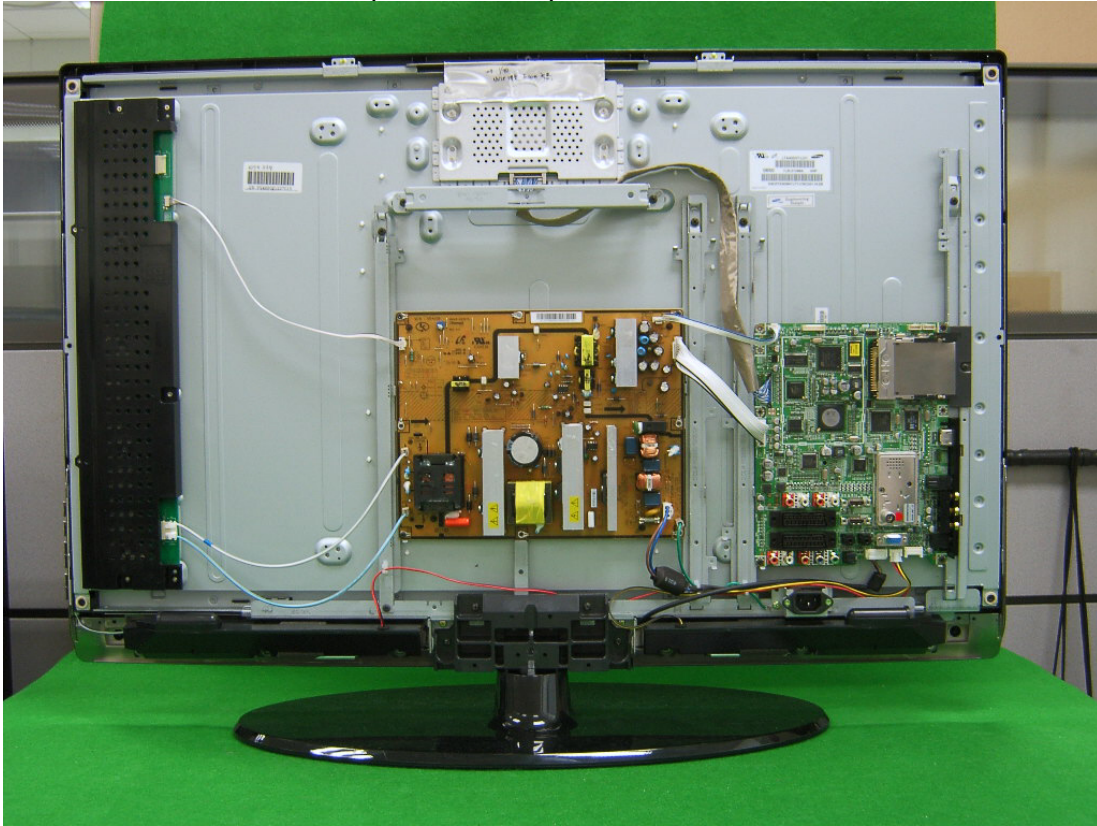


**<Photo 4 > TU40EO – Internal View with IP-231135A**

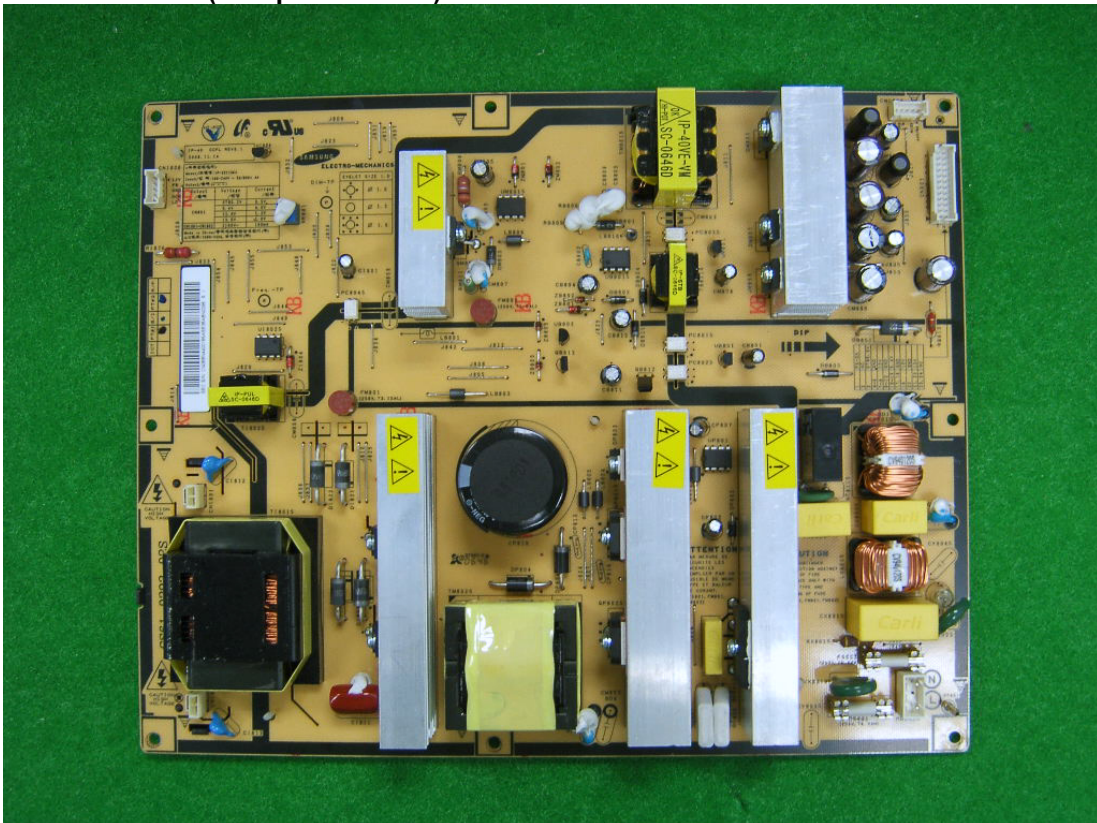




<Photo 5 > TU40EO – Internal view (With SIP400B)

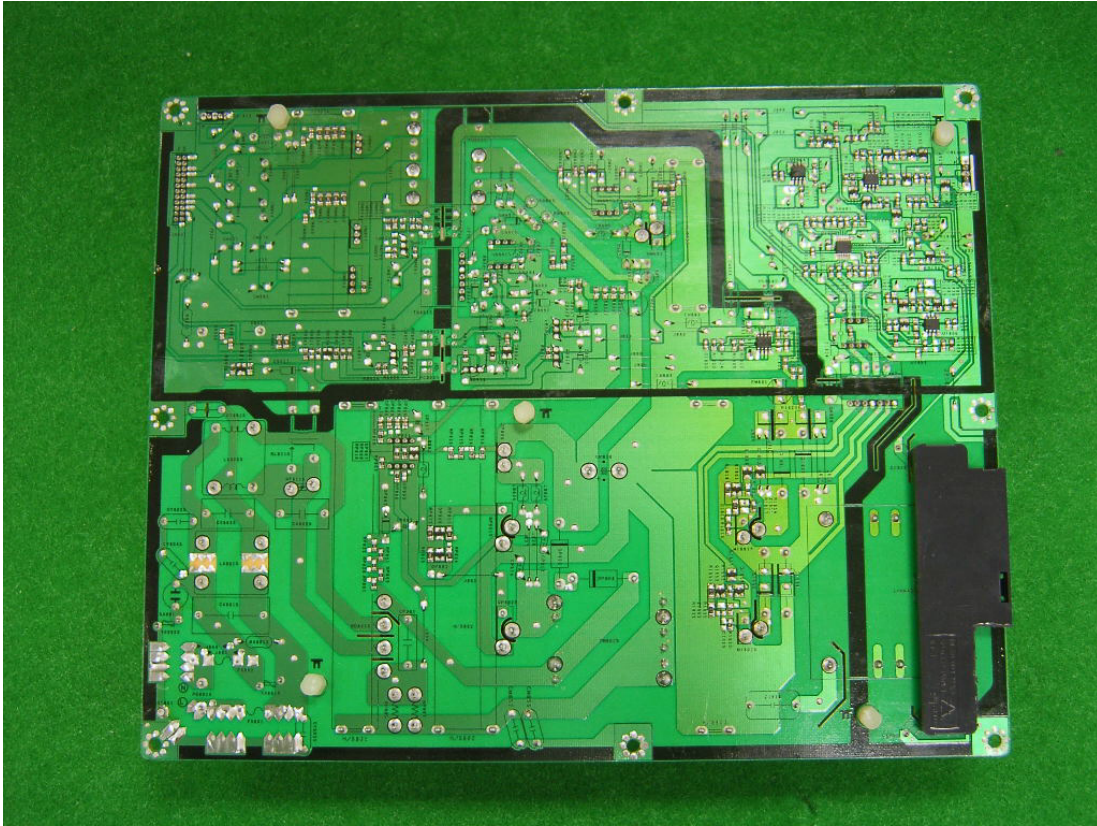


<Photo 6 > IP-231135A(Component View)

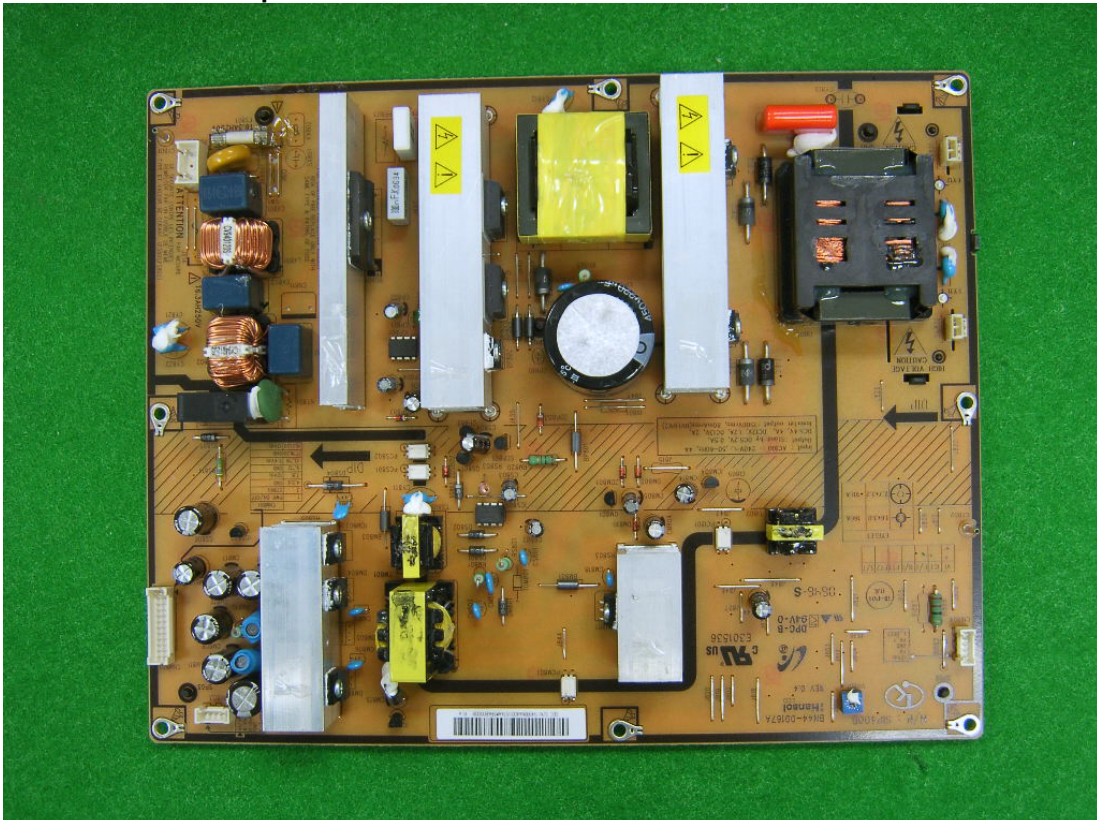




<Photo 7 > IP-231135A – Pattern View

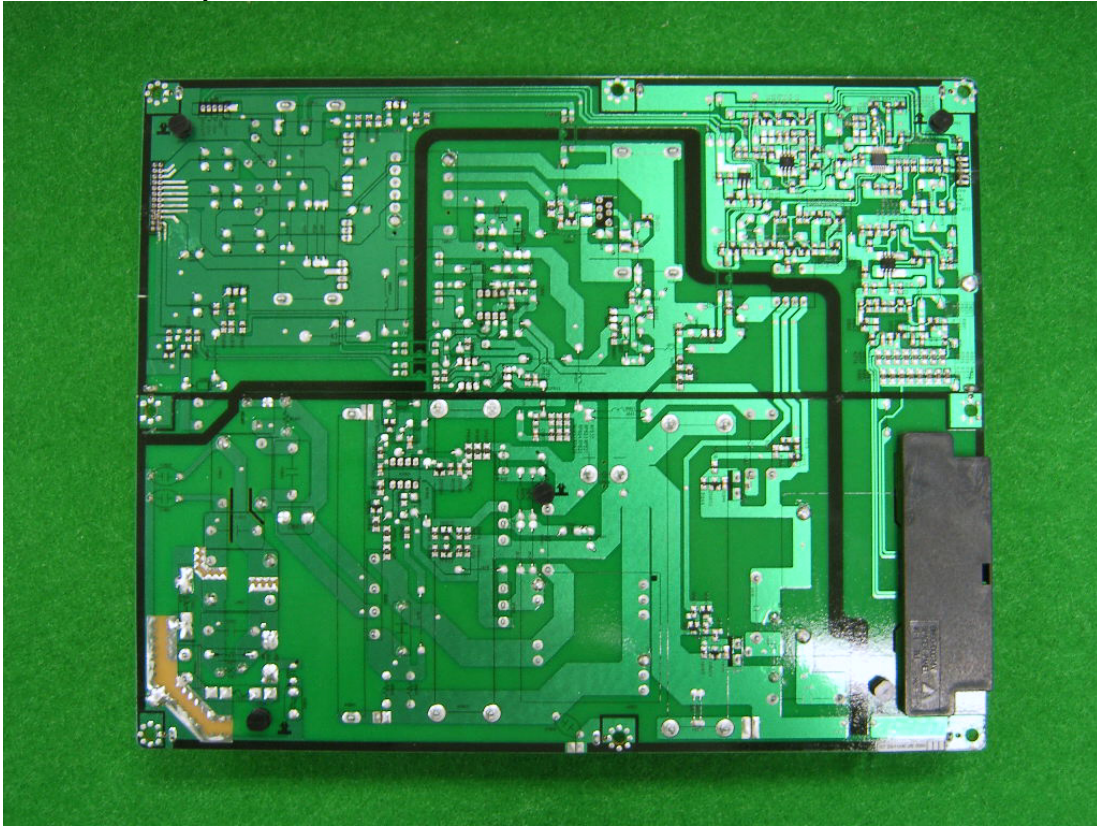


<Photo 8 > SIP400B – Component View





**<Photo 9 > SIP400B – pattern View**

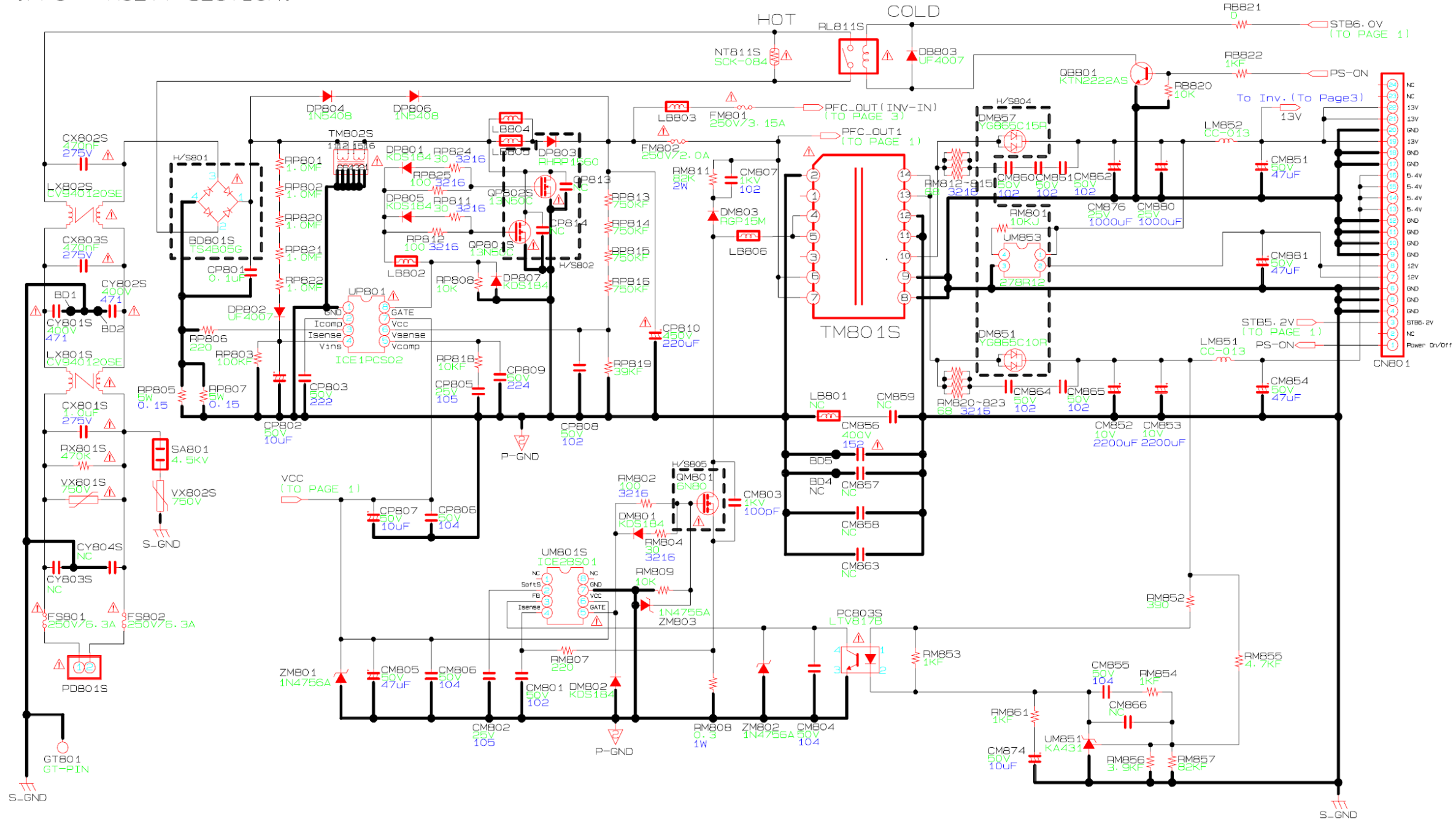




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[PFC & MULTY SECTION]



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K. J. D 01/15/ 07 - CIRCUIT DRAWN FOR NET DESIGN

NOTE

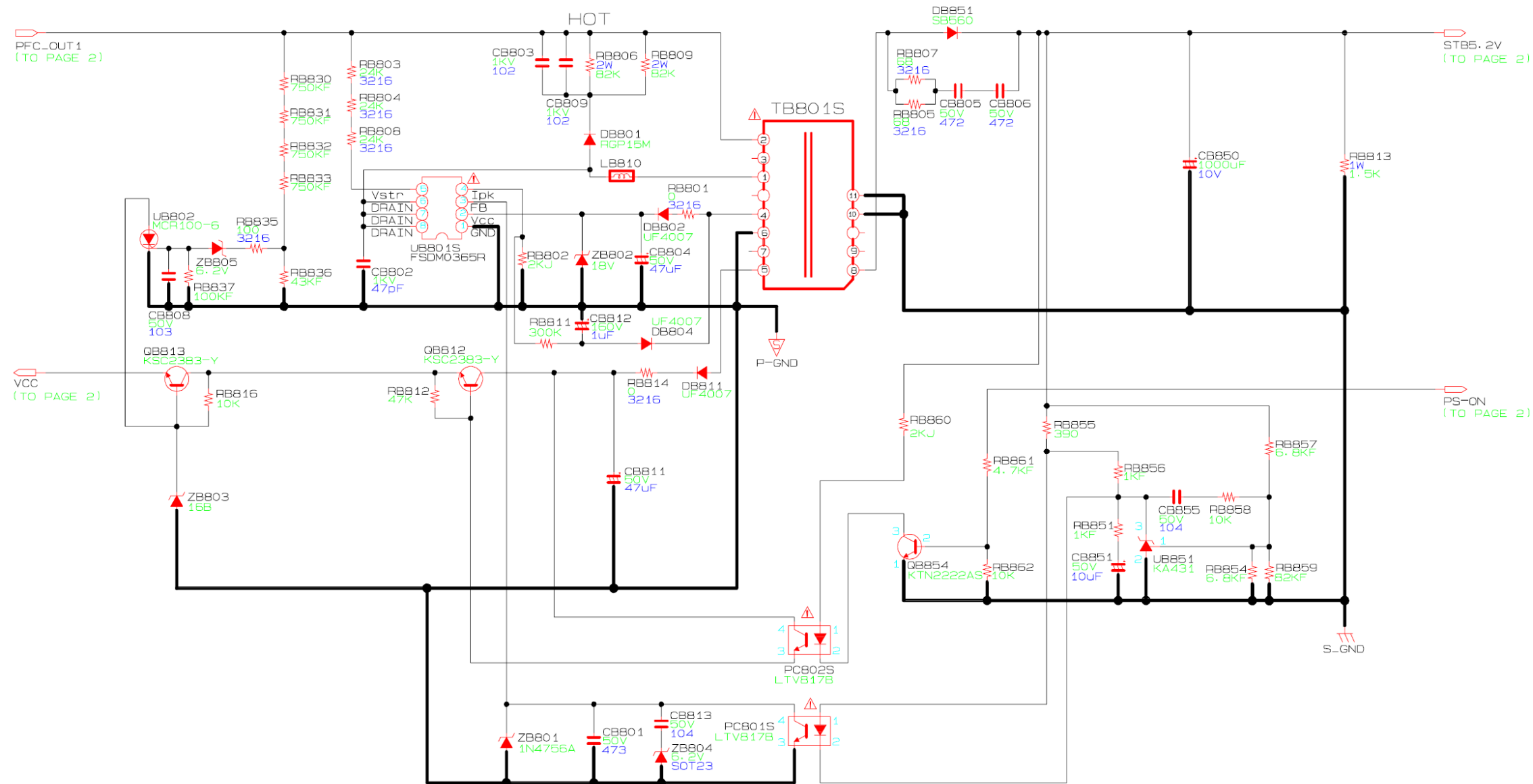
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[STAND-BY & PROTECTION SECTION]



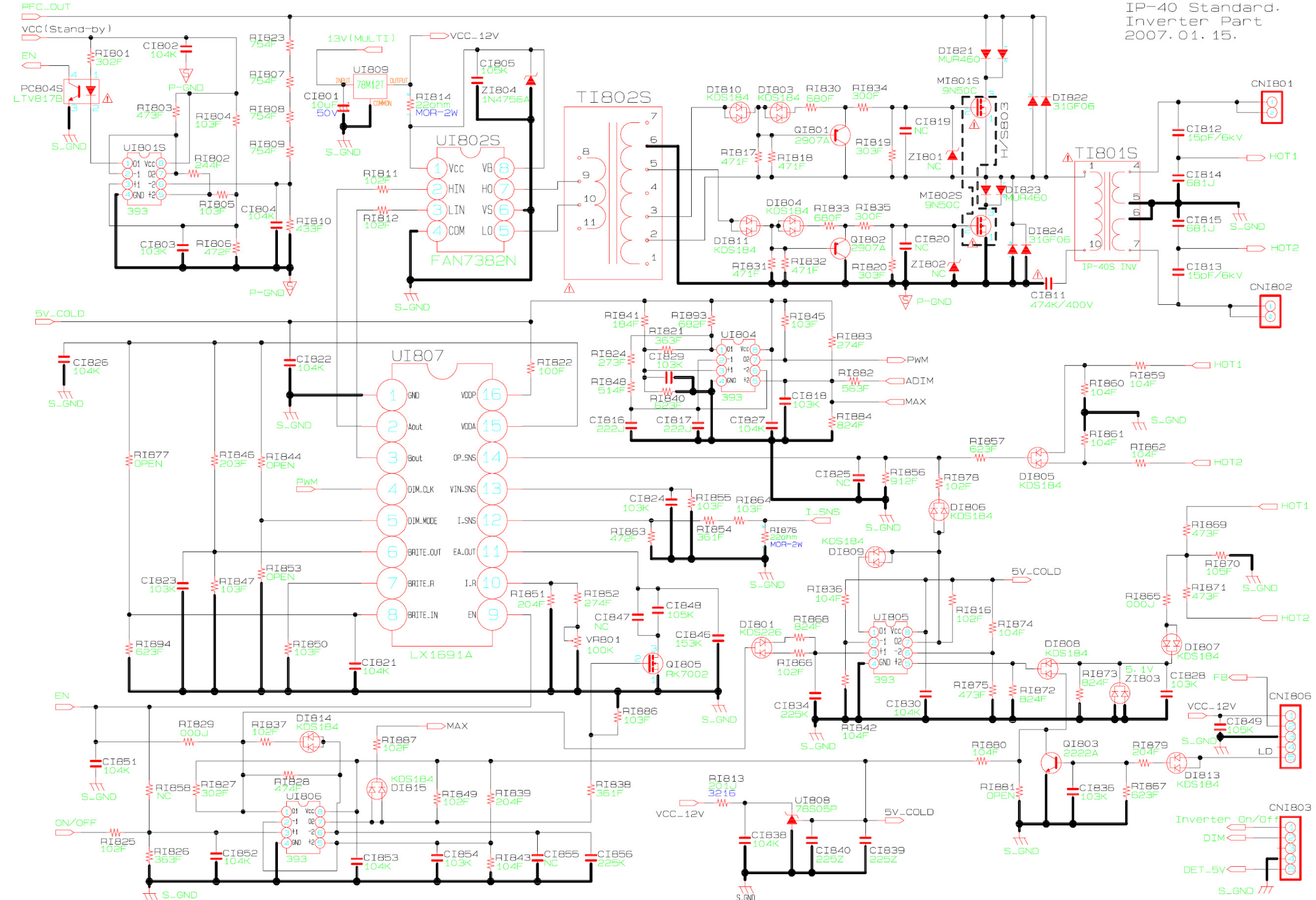
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K. J. D 01/15/07 - CIRCUIT DRAWN FOR NET DESIGN

NOTE

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ELECTRO-MECHANICS

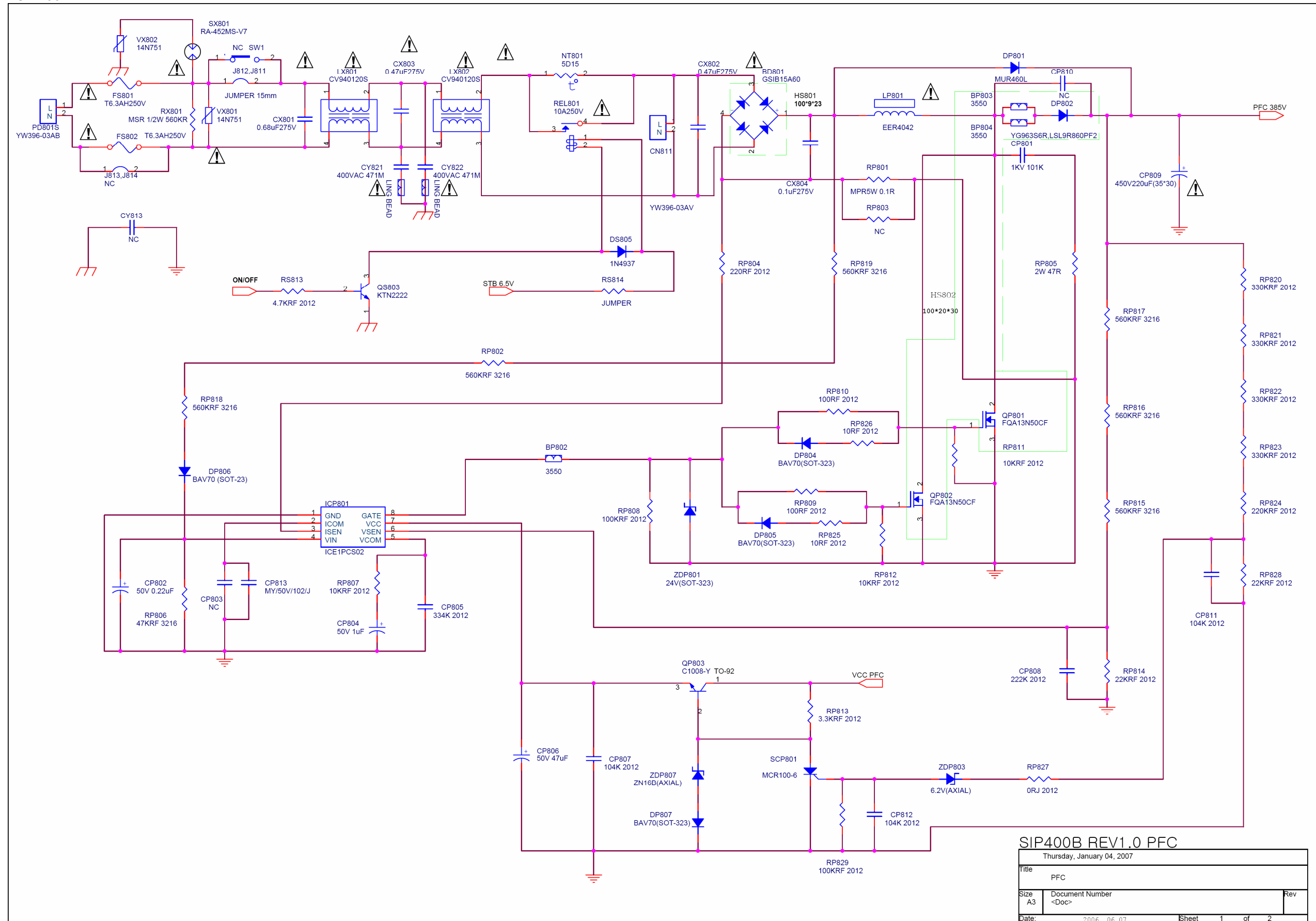
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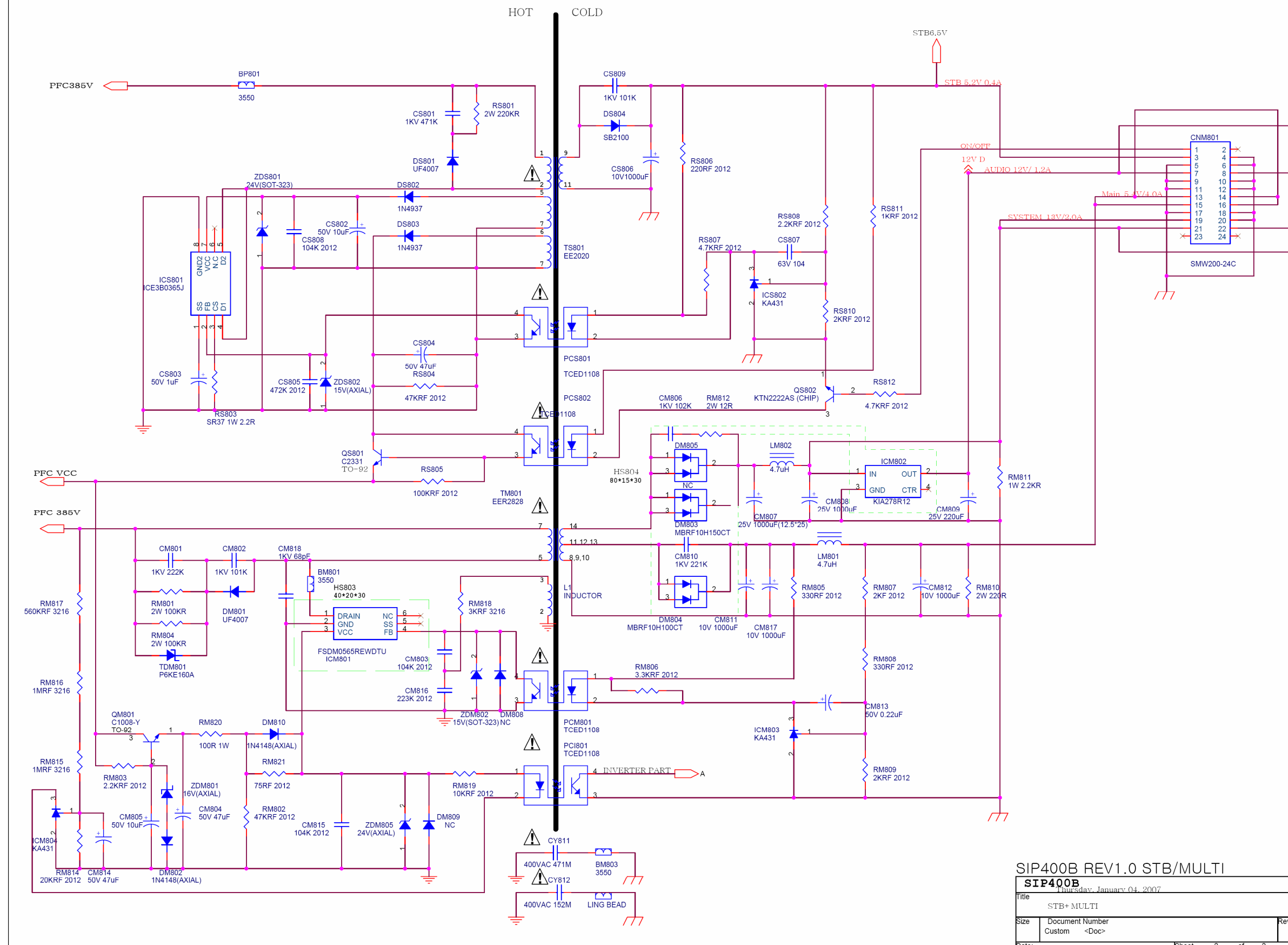


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2007.01.15.

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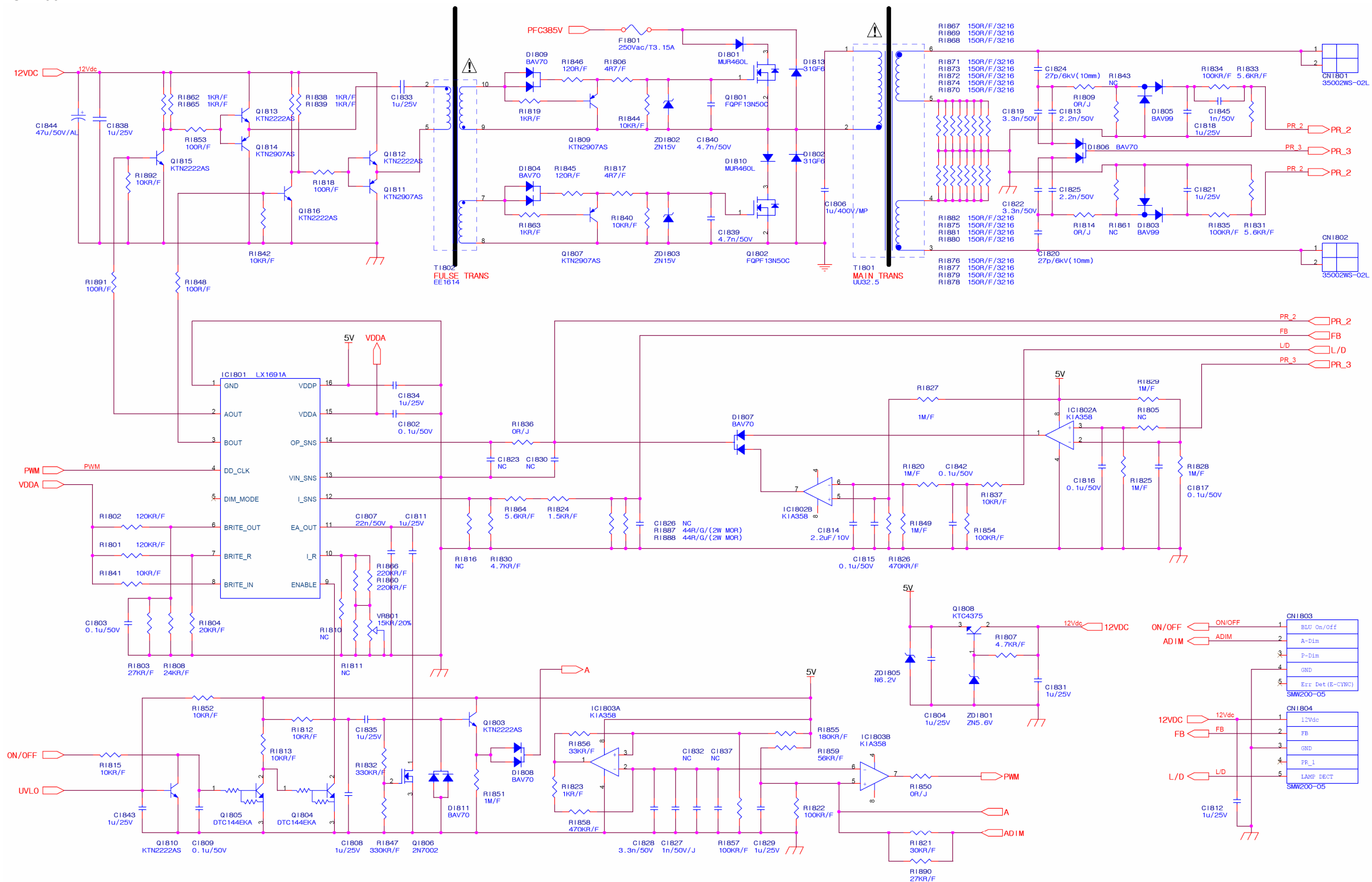
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