

SPECIFICATION

and

PERFORMANCE

for

SWITCHING POWER SUPPLY

M/N : SNP-P409-S

All Rights Reserved

Reviewed by Product Engineer	丁一, 4-30-24					
Typed by Document Assistant	董瑞英 043024					
SKYNET ELECTRONIC			LAST REV. NO.			

1.0 INTRODUCTIONS

SNP-P409-S is an U-shape 400W power supply at convection and 600W at forced air cooling with built-in:

- (1) with peak and surge load capability.
- (2) Fan speed controlled by loading.
- (3) Can start up 60,000uF capacitive loading.
- (4) Remote sense function to compensate output line drop.

2.0 INPUT SPECIFICATIONS

2.1 Input voltage

The range of input voltage is from 90VAC to 264VAC. Nominal line 115VAC/230VAC.

2.2 Input frequency

The range of input frequency is from 47Hz to 63Hz.

2.3 Input current

The maximum input current is 9A at 115VAC or 5.5A at 230VAC.

2.4 Inrush current

The inrush current will not exceed 35A at 115VAC input or 70A at 230VAC input, cold start at 25°C. (EMI capacitors excluded)

2.5 Green power

Input power is less than 0.5W at 0.2W output (remote off) and 115Vac/230Vac input .

3.0 OUTPUT SPECIFICATIONS

3.1 Load range

output	rated load	max. load	peak load	Surge Load
+24V	16.66A	25A	33A	50A
+5Vsb	1A	1.5A		

3.1.1 Factory adjustment

+24V : 23.8V to +24.2V

+5V : 4.9V to 5.1V

(60% rated load, 115Vac)

3.1.2 Total output power

400W with convection cooling, 400W~600W with forced air cooling.(refer to 5.1)

At peak load and nominal line, the output can last for at least 1.2 sec without shut down. If shut down will recover again within 10 sec.

3.2 Ripple and noise

< 1% (Measuring is done by 15MHz band width limited oscilloscope and terminated output with a 0.47uF +22uF capacitor.)

3.3 Line regulation

< 1% (measuring at rated load and + -10% of nominal line input voltage changing.)

3.4 Load regulation

< 1% (output load + -40% from 60% rated load and nominal line.)

3.5 Capacitive load capability

< 60000uf (115VAC, rated Load)

3.6 Remote sense

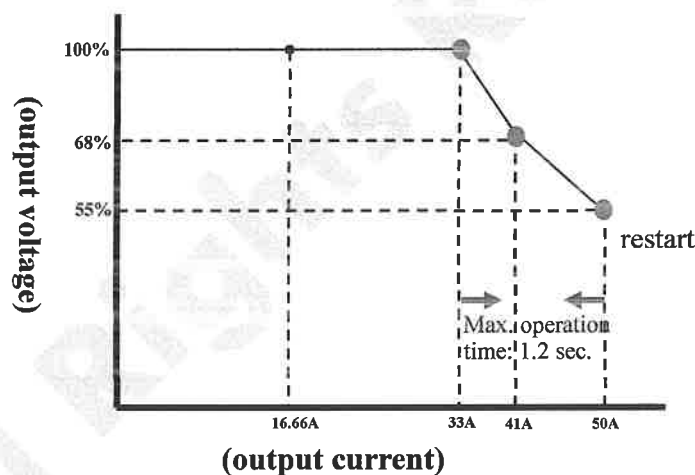
The +24V output has remote sense capability and can compensate for 0.5V at least due to output line drop.

3.7 Peak load capability

The output current can provide 2X rated current for at least 1.2sec, and without output voltage drop.

3.8 Surge load capability

The output current can provide 3X rated current at least 1.2 sec, and output voltage won't drop down to 55% of output voltage.

**3.9 Remote on / off control**

The TTL compatible signal (active low) is use to switch on the output. When remote pin is disconnected from secondary common, the output shall turn off

4.0 GENERAL FEATURES**4.1 efficiency**

The efficiency is typical 91% while measuring at nominal line and rated load.

4.2 Hold up time

The hold up time is higher than 17 ms at 115VAC input and rated load, which is measured from the end of the last charging pulse to when the main output drops down to 95% output voltage.

4.3 Protection

4.3.1 Over current protection

The over current protection will be activated after the end of peak or surge load period. The trip point is $120\% \pm 10\%$ of maximum load. And will auto recovery within 10sec.

4.3.2 Short protection

Protection mode : Auto-recover within 10 sec.

4.3.3 Over voltage protection

+24V trip point : +27V to 30V.

Protection mode : Latch-off.

4.3.4 Over temperature protection

The temperature sensor is attached to the switching power MOS surface.

When the surface temperature is higher than 120°C , the power supply will shut down and will recover after the temperature going down.

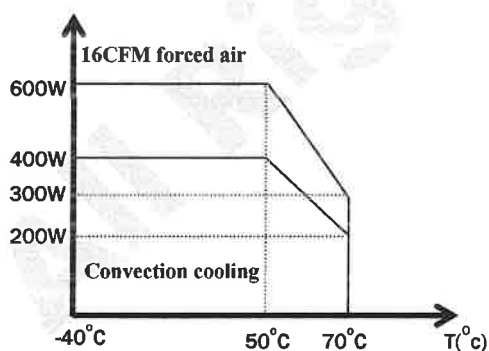
4.4 Fan speed control

The Fan output is only activated $> 50\% \pm 10\%$ of rated load.

5.0 ENVIRONMENT SPECIFICATIONS

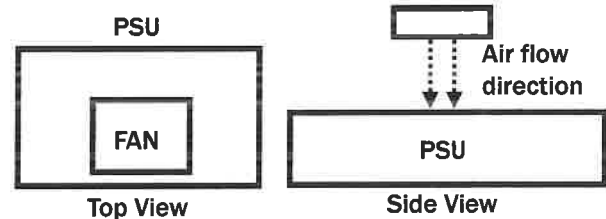
5.1 Operating temperature

-40°C to 50°C no derating, above 50°C , derate at 2.5% per degree from 50°C to 70°C .



MAX Load Fan location

6cm above center of T1



5.2 Storage temperature

-40°C to 85°C

5.3 Operating humidity

5% to 95% RH, non-condensing

5.4 Altitude

0 to 5000m

6.0 INTERNATIONAL STANDARDS

6.1 Safety standards (Label voltage: 100Vac to 240Vac)

Designed to meet the following regulations :

UL/CSA/EN/IEC 62368-1

ANSI/AMMI/CSA/EN/IEC 60601-1

6.2 EMI standards

Designed to meet the following limits :

FCC level "B"

EN55032, level "B"

EN55011, level "B"

EN61000-3-2 class "D"

EN 61000-3-3

6.3 EMS standards

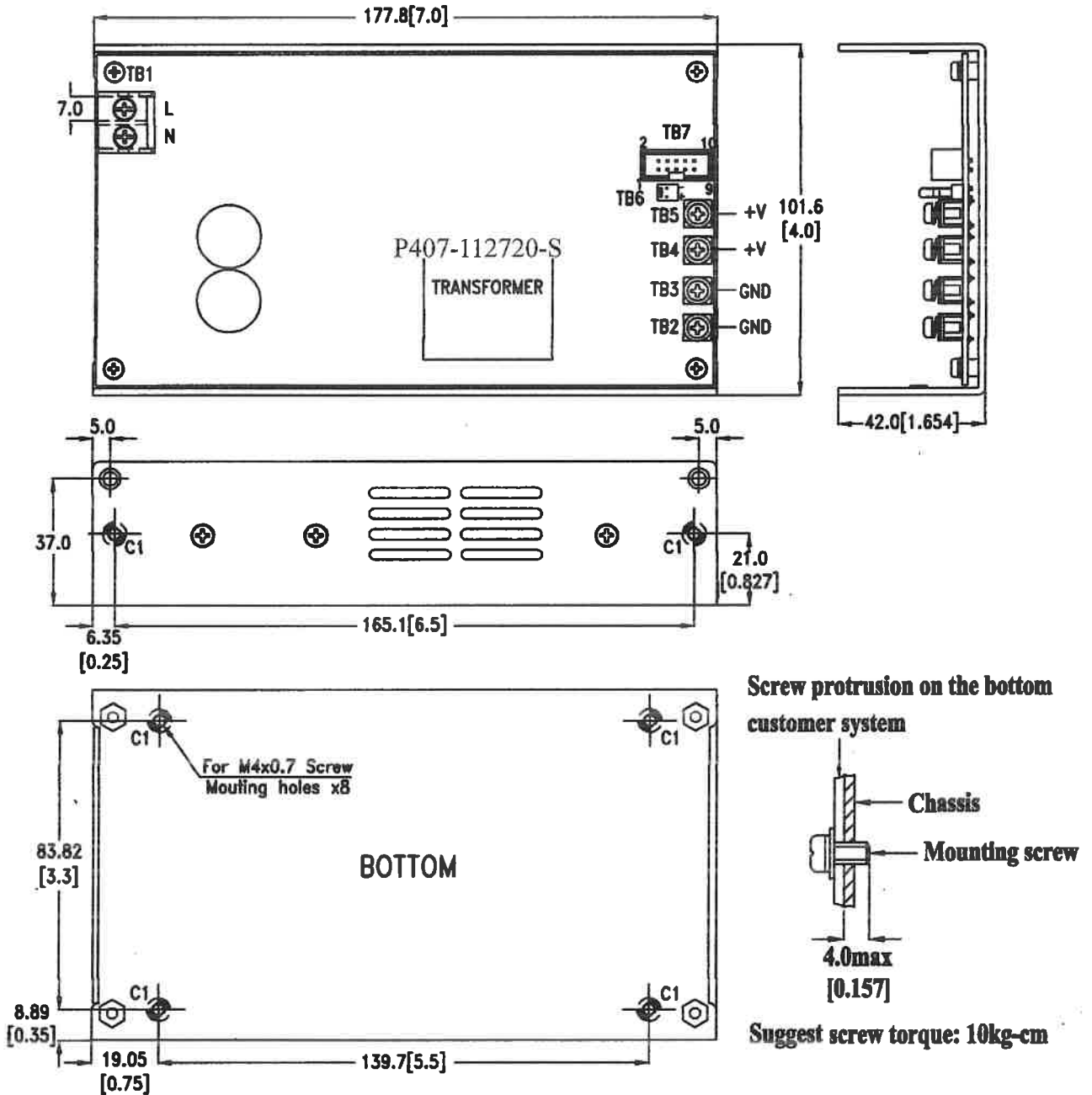
EN61000-4-2	8kV/contact discharge, 15kV/air discharge	Criterion A
EN61000-4-3	10V/M with 80% AM	Criterion A
EN61000-4-4	2kV	Criterion A
EN61000-4-5	1kV/Line-Line, 2kV/Line-Earth	Criterion A
EN61000-4-6	10V with 80% AM	Criterion A
EN61000-4-8	30A/m	Criterion A
EN61000-4-11	30% dips 500ms,	Criterion A
	30% dips 600ms,	Criterion B
	100% dips 10ms,	Criterion A
	100% dips 20ms,	Criterion B
	100% dips 5000ms,	Criterion B
	100% dips 6000ms,	Criterion B

7.0 MECHANICAL SPECIFICATION

7.1 Dimensions

Dimensions shown in mm[inch] as above.

Tolerance specified is $\pm 0.4\text{mm}[0.016]$ between mounting holes, $\pm 0.8\text{mm}[0.032]$ other dimension.



7.2 Connectors

- TB1--AC Input : 2P/ Terminal Block with cover (M3screw)
(screw torque : 8kg-cm)
- TB2,TB5--DC Output : Terminal (#6-32 screw)(screw torque : 10kg-cm)
- TB6--For 12V Fan use : LCU P2050-02
- TB7--Signals(+5Vsb) : 2x5(10 pins), 2.54mm pitch header

7.3 TB2~TB5&TB7 output pin assignment

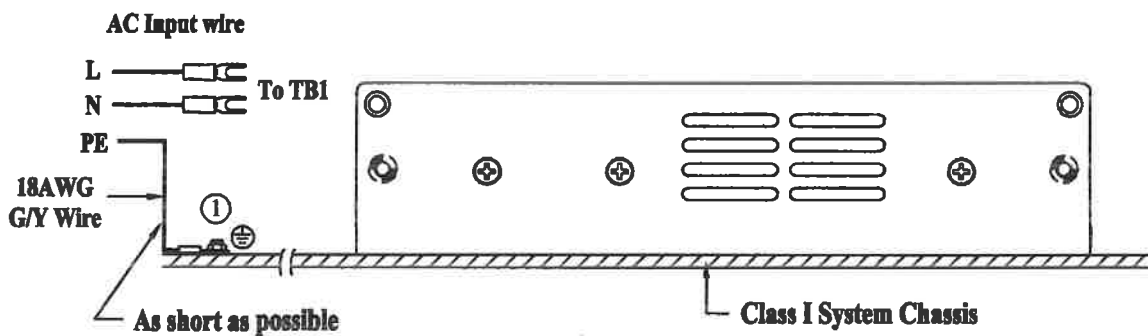
TB2	GND	TB7 Pin	1.	+5V	2.	+5V
TB3	GND		3.	GND	4.	GND
TB4	+V		5.	NC	6.	NC
TB5	+V		7.	GND	8.	REMOTE ON
			9.	RS-	10.	RS+

7.4 Packing

- Net weight : 897g approx. / unit
- Carton size(mm) : 423 (L) x 298 (W) x 245 (H)
- Quantity : 12 units / carton
- Gross weight : 13.3kg approx. / carton

8.0 APPLICATION NOTE

8.1 For Class I connection

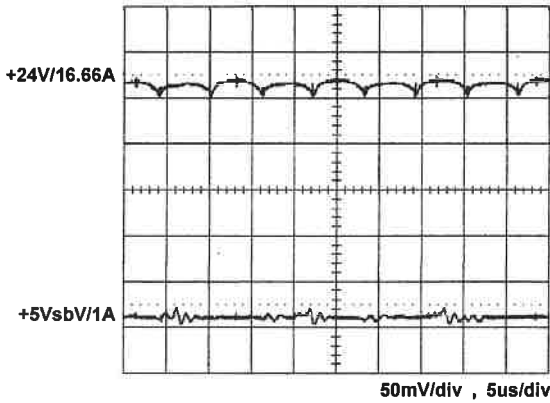


Note:

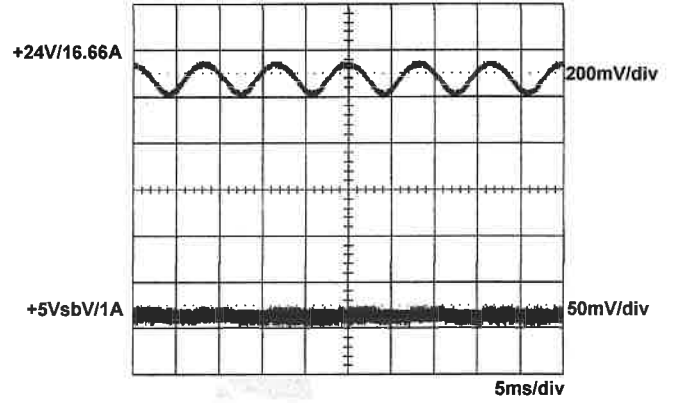
1. Must be fixed properly after the ground wire go into chassis for safety reason.

9.0 PERFORMANCE (input voltage is 115VAC, unless others specified)

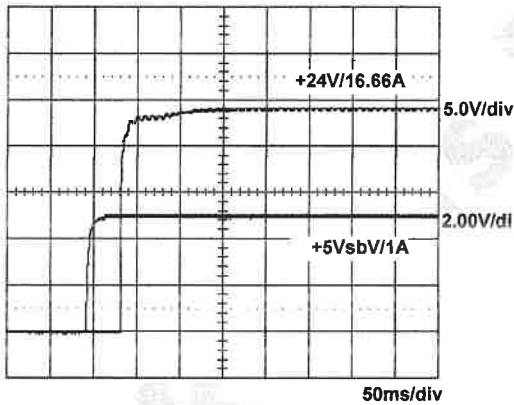
9.1 Switching frequency ripple



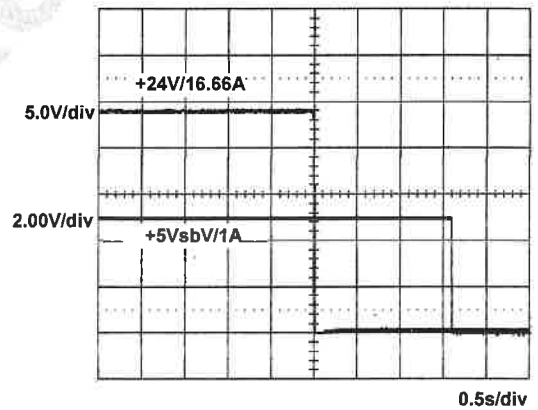
9.2 Line frequency ripple



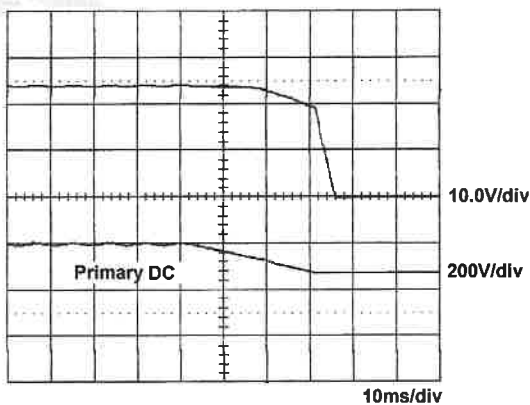
9.3 Output turn on wave form



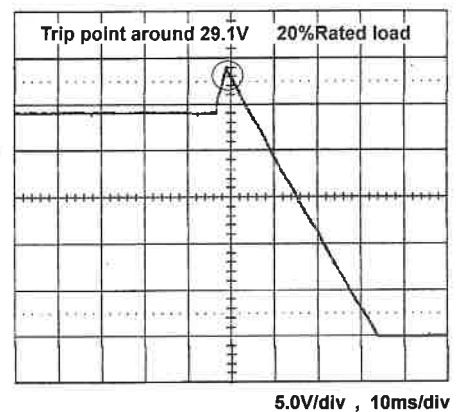
9.4 Output turn off wave form



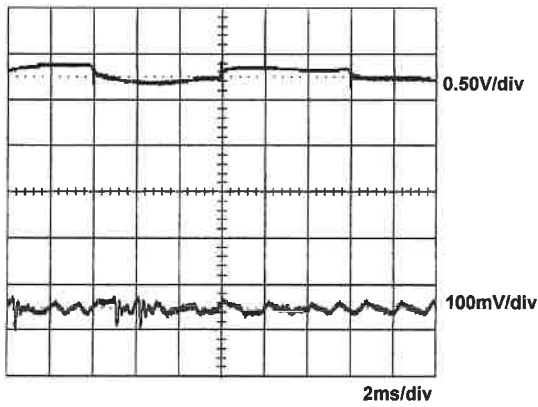
9.5 Hold-up time



9.6 +12V Over voltage protection

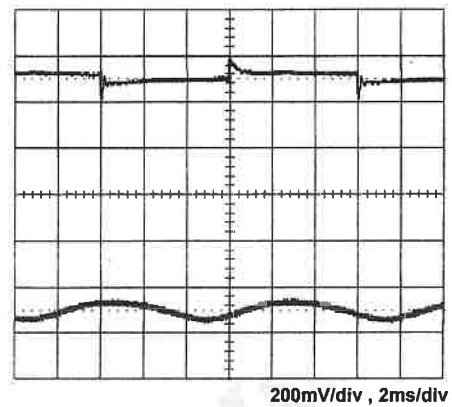


9.7 +24V Step response



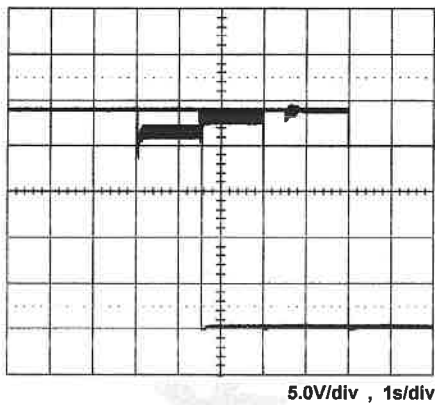
+24V step from 3.33A to 16.67A
+5Vsb / 0.6A

9.8 +5Vsb Step response



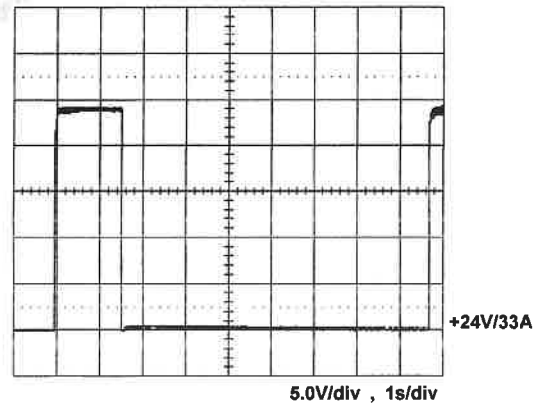
+5Vsb step from 0.2A to 1A
+24V/9.996A

9.9 Surge load capability



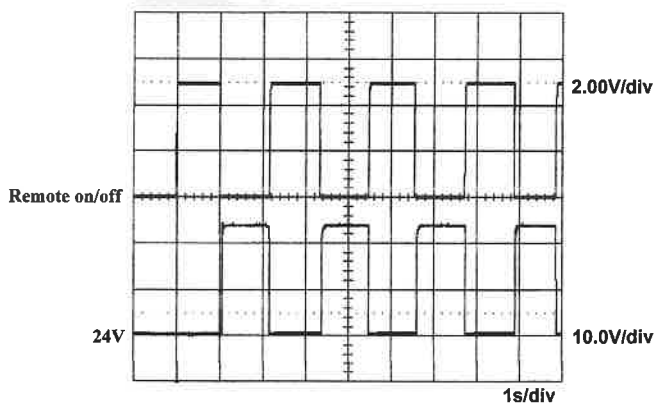
5.0V/div , 1s/div

9.10 Peak Load

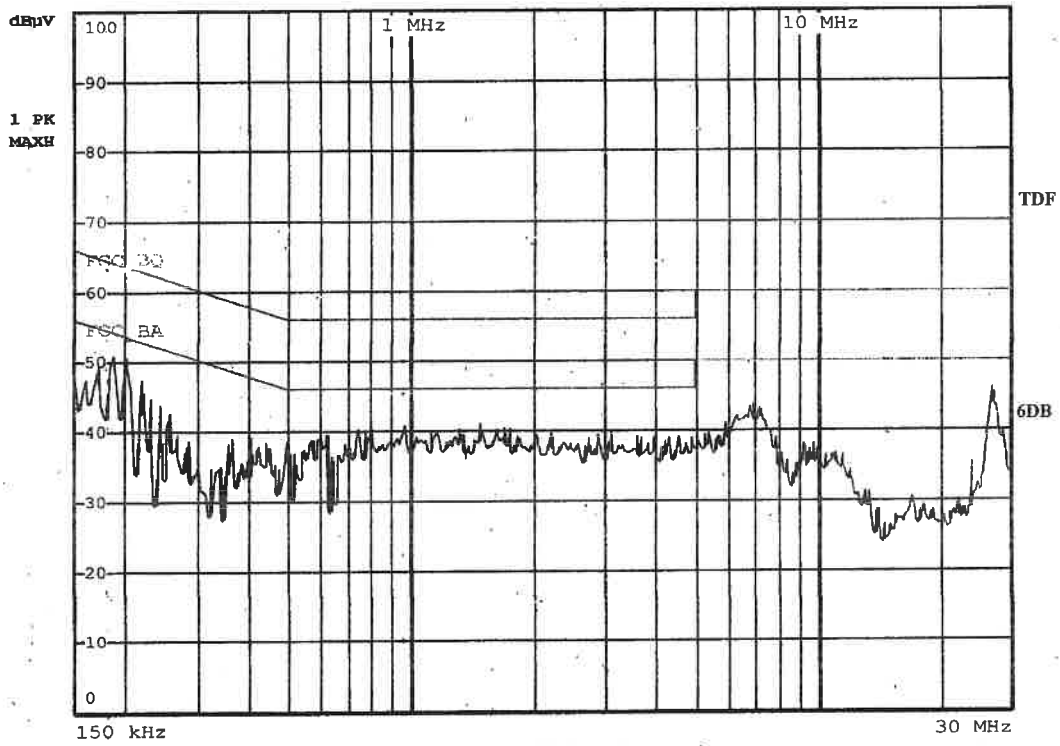


+24V/33A

9.11 Remote on/off



9.12 FCC "B"



9.13 CISPR "B"

