

SPECIFICATION

and

PERFORMANCE

for

SWITCHING POWER SUPPLY

M/N : SNP-AX40

Reviewed by Project Manager	梁進序 6-20-63	梁進序 10-13-63				
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SKYNET ELECTRONIC			LAST REV. NO.			

1.0 INTRODUCTIONS

The SNP-AX40 off-line switching power supply is ideal for use in industrial computers, workstations, and equivalent systems. This power supply has designed to meet UL, CSA, TUV safety agency and harmonic EN 61000-3-2 class D.

2.0 INPUT SPECIFICATIONS

2.1 Input Voltage

The range of input voltage is from 90VAC to 264VAC, normal line is 115VAC/230VAC. (Label 100~250VAC)

2.2 Input frequency

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

2.3 Inrush current

The inrush current will not exceed 30A at 115VAC input or 60A at 230VAC input cold start, 25°C.

2.4 Input current

The maximum input current is 6A at 115VAC or 3A at 230VAC.

2.5 PFC

PFC > 0.95 at rated load and nominal line.

3.0 OUTPUT SPECIFICATIONS

3.1 The Load range

output#	output	min. load	rated load	max. load	voltage range
1	+5V	2A	30A	40A	4.80V to 5.20V
2	+12V	0.2A	12A	15A	11.40V to 12.60V
3	-12V	0A	1A		-11.40V to -12.60V
4	-5V	0A	0.5A		-4.75V to -5.25V
5	+3.3V	1A	25A	30A	3.14V to 3.47V
6	+5Vsb	0A	2A		4.75V to 5.25V

At factory, the all outputs in 60% rated load and normal line condition, the +5V output is set to between 4.95V and 5.05V the other outputs are checked to be within the specified voltage range.

● +12V **peak load** of 18A can last 5 sec., at normal line. Regulation can go to +/-10%.

3.2 Output power

The total DC continuous power shall be kept under 400W at normal line input and ambient temperature of 50°C.

Total combined power on +3.3V and +5V rails are 230W maximum.

Total combined power on +3.3V, +5V and +12V rails are 400W maximum.

Total combined power on +3.3V, and +12V rails are 230W maximum.

3.3 Ripple and noise

The peak to peak ripple and noise for +5V and +3.3V output shall be less than 50mV. The other outputs shall be less than 1% of each output voltage at rated load, normal line. Measuring is done by 15MHz bandwidth limited oscilloscope and terminated each output with a 47uF + 0.47uF capacitor.

3.4 Line regulation

The output line regulation, for all outputs are less than + -1% while measuring at rated load and + -10% of normal line input voltage changing.

3.5 Load regulation

The output voltage load regulation is less than the values in the following table by changing each output load + -40% from 60% rated load normal line, and keep all other outputs at 60% rated load.

output #	1	+ -5%
	2	+ -5%
	3	+ -5%
	4	+ -5%
	5	+ -5%
	6	+ -5%

3.6 Power good signal

When power is turned on, the power good signal will go high 100ms to 500ms after all output DC voltages are within regulation limits, at rated load and normal line.

3.7 Power fail signal

The power fail signal will go low 1ms typical before any of the output voltages fall below the regulation limits, at rated load and normal line.

3.8 Power ON signal

This TTL compatible signal (active low) is used to switch ON the main output. When Power on is disconnected from the secondary common all outputs except +5Vsb shall turn off.

3.9 Efficiency

The efficiency shall be 75% typ. measuring at nominal line and rated load.

3.10 Hold up time

The hold up time is 20mS typical 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.

3.11 Low noise design

The power supply has been built with fan speed control to reduce fan noise

4.0 OUTPUT PROTECTIVE FEATURES

4.1 Over voltage protection

For some reasons the power supply might fail to control itself, the build-in crowbar circuit will automatically shut down the outputs to avoid damaging the external circuits. The trip point of O.V.P circuit is around 3.6V to 5V for +3.3V, 5.7V to 7.0V for +5V and 13.4 to 15.6V for +12V.

The recover from over voltage protection the AC line shall be cycled OFF and ON.

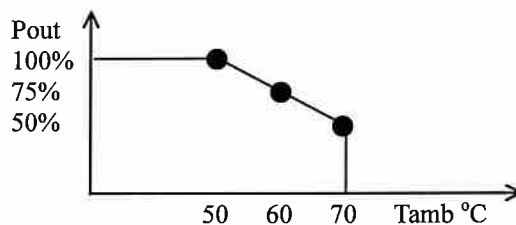
4.2 Short circuit protection

The power supply will go into hiccup mode when a short circuit or overload condition is present. If the faulty condition is removed the power supply will automatically restart. The -12V, -5V is protected by regulator.

5.0 ENVIRONMENT SPECIFICATIONS

5.1 Operating temperature

0°C to 50°C. (-20°C could start up at nominal line. 50°C~70°C could work derating)



5.2 Storage temperature

-40°C to +75°C

5.3 Operating humidity

The power supply can operate from 5% humidity to 95% humidity non-condensing at 40°C.

5.4 Altitude

Will operate properly at any altitude between 0 to 10000ft.

5.5 Vibration

Non-operation: 10Hz~55Hz at 3G, 3minutes period, 30 minutes along X, Y, and Z axis.

Operation : 10Hz~55Hz at 2G, 3minutes period, 30 minutes along X, Y, and Z axis.

5.6 Shock

Non-operation: 30G for 11ms half sine wave, one time for each of $\pm X$, $\pm Y$, $\pm Z$ axis.

operation : 15G for 11ms half sine wave, one time for each of $\pm X$, $\pm Y$, $\pm Z$ axis.

6.0 INTERNATIONAL STANDARDS

6.1 Safety standards

UL 60950

CSA 22.2 NO.234

EN 60950

6.2 EMI standards

Designed to meet the following limited:

FCC CRF 47 Part 15B curve "B"

EN55022 class "B"

EN61000-3-2 class D

6.3 EMS standards

Designed to meet the following limits:

EN61000-4-2 4KV contact; 8KV air discharge Criterion B

EN61000-4-3 10V/M with 80% AM Criterion A

EN61000-4-4 2KV Criterion B

EN61000-4-5 Line to Line 1KV; Line to Ground 2KV. Criterion B

EN61000-4-6 10V with 80% AM Criterion A

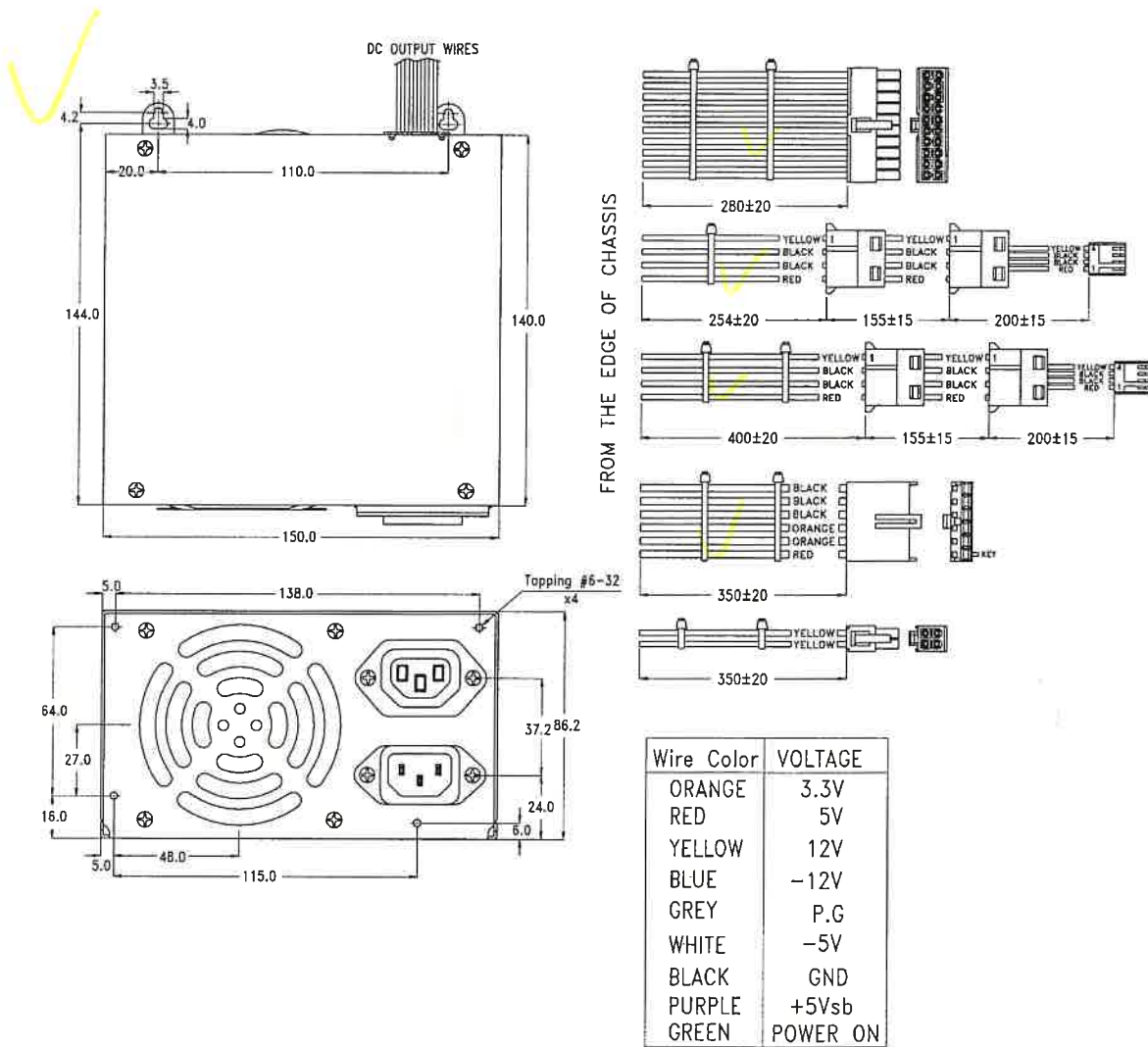
EN61000-4-8 30A/m Criterion A

EN61000-4-11 30% dips 10ms, Criterion B

60% dips 100ms, Criterion C

>95% dips 5000ms, Criterion C

7.0 MECHANICAL SPECIFICATION



7.1 Dimensions

Dimensions shown in mm as above.

Tolerance is + -0.4mm between mounting holes and + -0.8mm other dimensions.

7.2 AC Connectors

AC inlet : Meet IEC320/CEE 22 standard.

AC outlet : Meet IEC320 (Reverse type)

7.3 DC connectors

ATX Main Power : Molex 39-01-2200 or equivalent

Auxiliary Power : BURNDY GTC6P-1 or equivalent

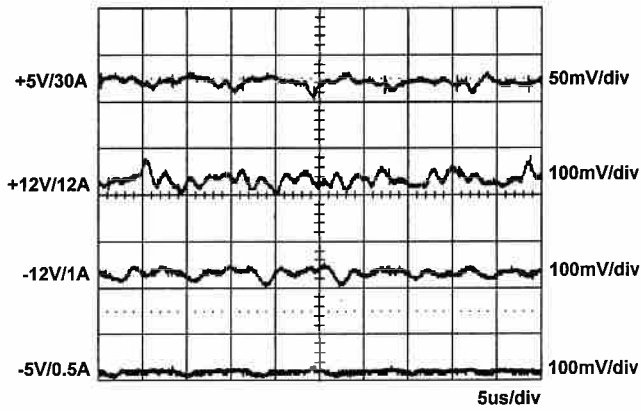
Disk Driver : AMP 1-480424-0 or equivalent

Floppy Driver : AMP 171822-4 or equivalent

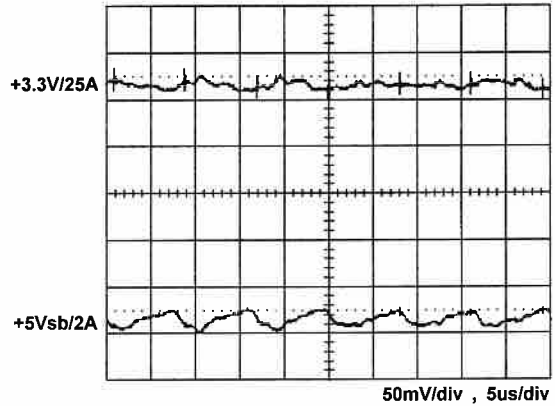
+12V Power : Molex 39-01-2040 or equivalent

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

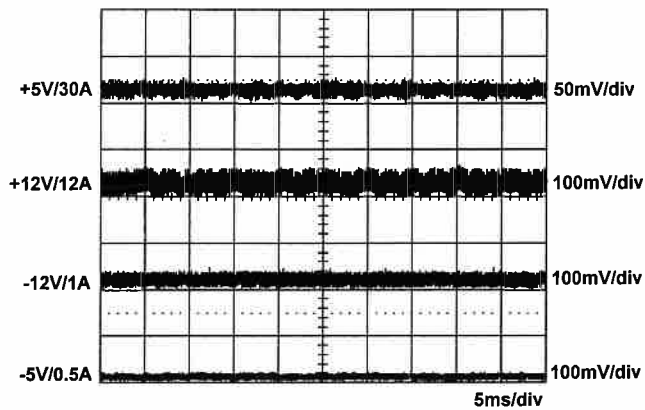
8.1 Switching frequency ripple



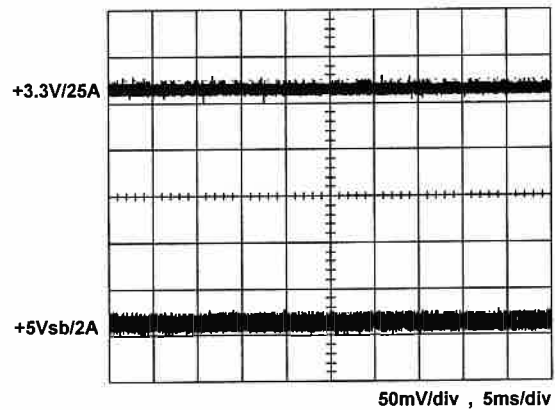
8.2 Switching frequency ripple



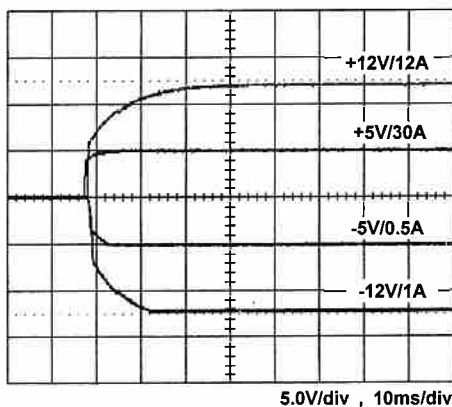
8.3 Line frequency ripple



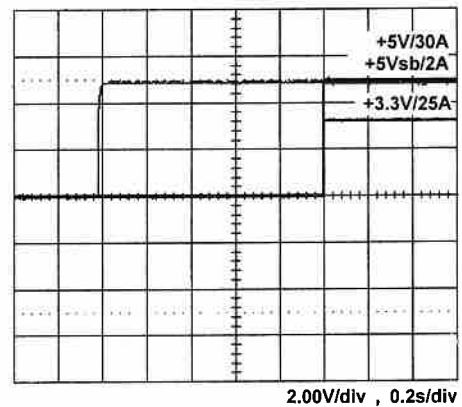
8.4 Line frequency ripple



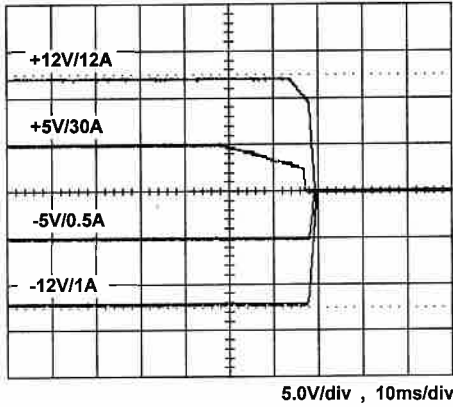
8.5 Output turn on wave form



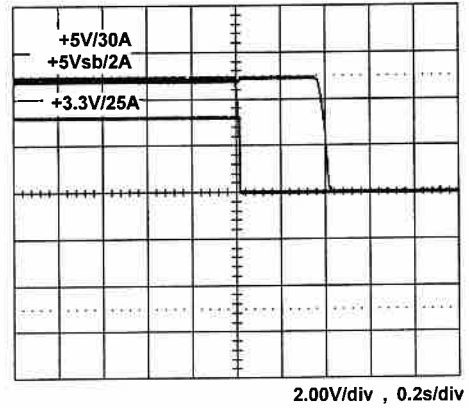
8.6 Output turn on wave form



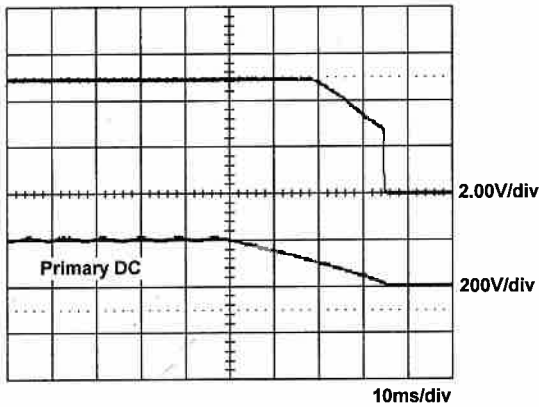
8.7 Output turn off wave form



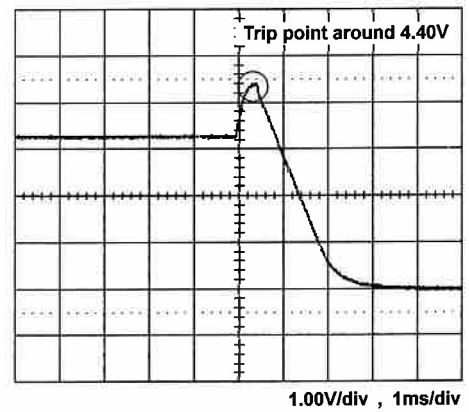
8.8 Output turn off wave form



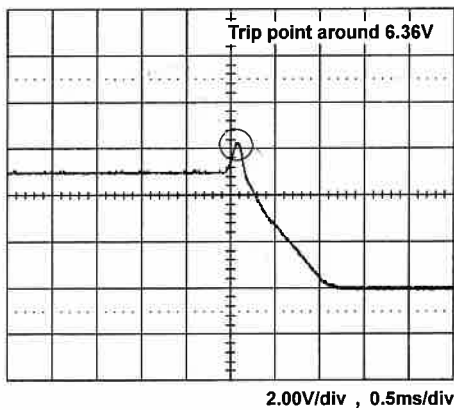
8.9 Hold-up time



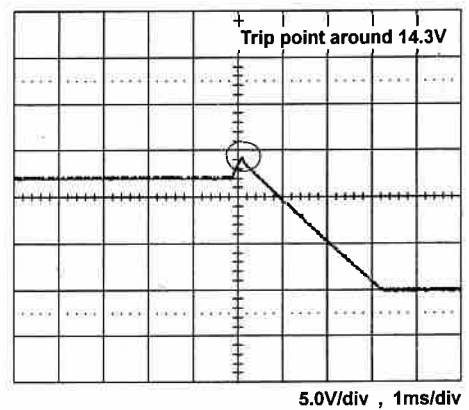
8.10 +3.3V Over voltage protection



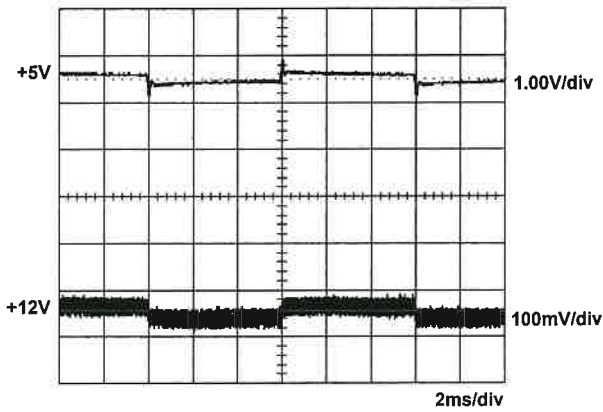
8.11 +5V Over voltage protection



8.12 +12V Over voltage protection

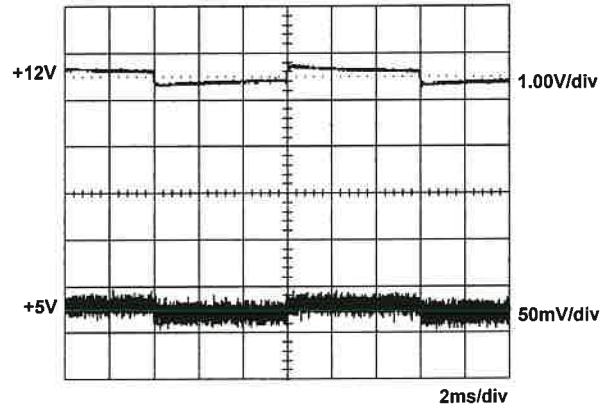


8.13 +5V step response



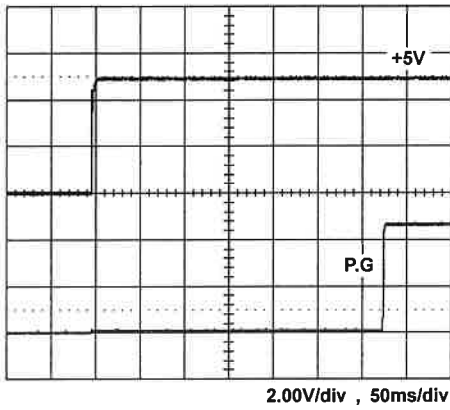
+5V step from 6A to 30A
other output at 60% load

8.14 +12V step response

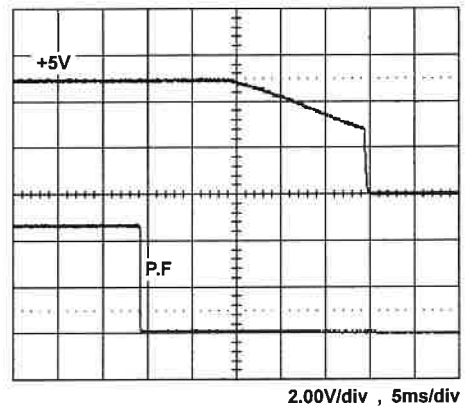


+12V step from 2.4A to 12A
other output at 60% load

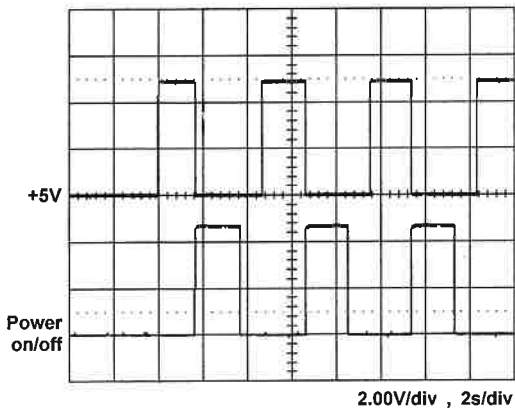
8.15 Power good signal



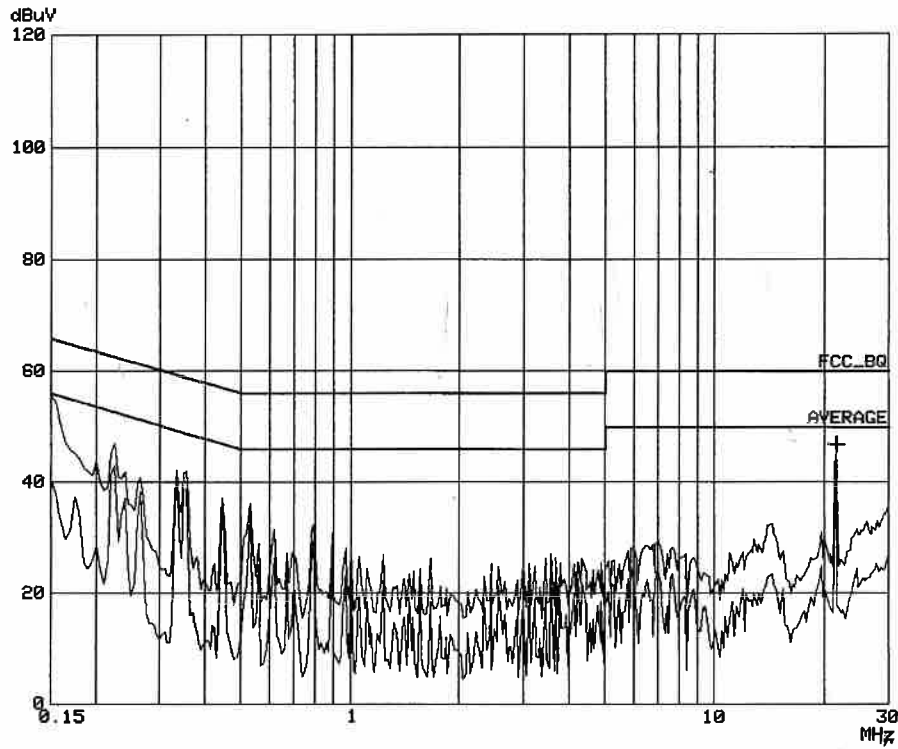
8.16 Power fail signal



8.17 Power ON signal



8.18 FCC B performance



8.19 EN 55022 B

