CE/EMC COMPLIANCE REPORT

for

Click Technology(Shenzhen) Co., Ltd

Switching Power Supply

Model Number : CPS024xy* "x" represents the output voltage. "y" represents output current. "*"represents the plug type.

Prepared for	 Click Technology(Shenzhen) Co., Ltd Block 7, Zhengzhong Industrial Park, Qiao Tou Village, Fu Yong
Address	Town, Ban An District, Shen Zhen City, Guang Dong, China
Prepared By	 NS Technology Co., Ltd. Chenwu Industrial Zone, Houjie Town, Dongguan City,
Address	Guangdong, China
	Tel: 86-769-85935656 Fax: 86-769-85991080

Report Number	:	NSE-E09053295
Date of Test	:	May 13-18, 2009
Date of Report	:	May 19, 2009



TABLE OF CONTENTS

Т	est Re	eport Declaration	Page
1.	GF	CNERAL PRODUCT INFORMATION	4
	1.1.	Product Function	4
	1.2.	Description of Device (EUT)	
	1.3.	Difference between Model Numbers	
	1.4.	Independent Operation Modes	6
2.	TE	ST SITES	7
	2.1.	Test Facilities	7
	2.2.	List of Test and Measurement Instruments	
3.	TE	ST SET-UP AND OPERATION MODES	9
	3.1.	Principle of Configuration Selection	9
	3.2.	Block Diagram of Test Set-up	9
	3.3.	Test Operation Mode and Test Software	9
	3.4.	Special Accessories and Auxiliary Equipment	9
	3.5.	Countermeasures to Achieve EMC Compliance	9
4.	EN	IISSION TEST RESULTS	10
	4.1.	Conducted Emission at the Mains Terminals Test	
	4.2.	Disturbance Power Test	
	4.3.	Harmonic Current Emissions on AC Mains Test	14
	4.4.	Voltage Fluctuations and Flicker on AC Mains Test	15
5.	IM	MUNITY TEST RESULT	16
	5.1.	Description of Performance Criteria:	16
	5.2.	Electrostatic Discharge Immunity Test	17
	5.3.	Electrical Fast Transient/Burst Immunity Test	
6.	PH	IOTOGRAPHS OF TEST SET-UP	19
	6.1.	Set-up for conducted emission at the mains terminals test	19
	6.2.	Set-up for disturbance power test	
	6.3.	Set-up for harmonic current and voltage fluctuations/flicker test	20
	6.4.	Set-up for electrostatic discharge immunity test	
_	6.5.	Set-up for electrical fast transient/burst immunity test	
7.	PH	IOTOGRAPHS OF THE EUT	
	Ap	pendix I (10 pages)	
	Ap	pendix II (6 pages)	





NS Technology Co., Ltd.

Applicant: Address:	Click Technology(Shenzhen) Co., Ltd Block 7, Zhengzhong Industrial Park, Qiao Tou Village, Fu Yong Town, Ban An District, Shen Zhen City, Guang Dong, China					
Manufacturer: Address:	Click Technology(Shenzhen) Co., Ltd Block 7, Zhengzhong Industrial Park, Qiao Tou Village, Fu Yong Town, Ban An District, Shen Zhen City, Guang Dong, China					
E.U.T:	Switching Power	Supply				
Model Number:	CPS024xy* "x" represents the "y" represents ou "*"represents the	e output voltage. tput current. plug type.				
Trade Name:	Click	Serial N	No.:			
Date of Receipt:	May 13, 2009	Date of	Test: May 13-18, 2009			
Test Specification:	EN 55013:2001+. EN 55020:2007 EN 61000-3-2:20 EN 61000-3-3:19	A1:2003+A2:2006 06 95+A1:2001+A2:2005	5			
Test Result:	The equipment un requirements of the theorem of the term of te	nder test was found to h ne standards applied.	be compliance with the			
			Issue Date: May 19, 2009			
Tested by:	Revie	wed by:	Approved by:			
Angues	Tre	nenth	Harenbe			
Angus / Engineer	Iceman	Hu / Supervisor	Steven Lee / Manager			
Other Aspects: None.						
Abbreviations: OK/P=pass	ed fail/F=failed	n.a/N=not applicable	E.U.T=equipment under tested			
This test report is based on duplicated in extracts witho	a single evaluation of o put written approval of a	one sample of above mentio NS Technology Co., Ltd.	oned products ,It is not permitted to be			



1. GENERAL PRODUCT INFORMATION

1.1. Product Function

Refer to Technical Construction Form and User Manual.

1.2. Description of Device (EUT)

Description	:	Switching Power Supply
Model No.	:	CPS0242401000, CPS0240504000, CPS0240753200
System Input Voltage	:	AC 100~240V 50/60Hz 0.55A
DC Line	:	Unshielded, Undetachable 1.6m

1.3. Difference between Model Numbers

Table A: List of models CPS024xy* Serial switching power supply						
Model Name	Output voltage (V)	Max. output current (mA)	Max. output power (VA)	Transformer secondary winding (xPxTs)		
CPS024050y*	5.0	4000	20	0.55mmx3Px6Ts		
CPS024051y*	5.1	3920	19.992	0.55mmx3Px6Ts		
CPS024052y*	5.2	3840	19.968	0.55mmx3Px6Ts		
CPS024053y*	5.3	3770	19.981	0.55mmx3Px6Ts		
CPS024055y*	5.5	3630	19.965	0.55mmx3Px6Ts		
CPS024056y*	5.6	3570	19.992	0.55mmx3Px6Ts		
CPS024057y*	5.7	3500	19.95	0.55mmx3Px6Ts		
CPS024060y*	6.0	3330	19.98	0.55mmx3Px6Ts		
CPS024062y*	6.2	3220	19.964	0.55mmx3Px6Ts		
CPS024063y*	6.3	3170	19.971	0.55mmx3Px6Ts		
CPS024065y*	6.5	3070	19.955	0.55mmx3Px6Ts		
CPS024066y*	6.6	3030	19.998	0.55mmx3Px6Ts		
CPS024067y*	6.7	2980	19.966	0.55mmx3Px6Ts		
CPS024070y*	7.0	2850	19.95	0.55mmx3Px6Ts		
CPS024072y*	7.2	2770	19.944	0.55mmx3Px6Ts		
CPS024075y*	7.5	3200	24	0.5mmx2Px11Ts		
CPS024077y*	7.7	3110	23.947	0.5mmx2Px11Ts		
CPS024078y*	7.8	3070	23.946	0.5mmx2Px11Ts		
CPS024080y*	8.0	3000	24	0.5mmx2Px11Ts		
CPS024083y*	8.3	2890	23.987	0.5mmx2Px11Ts		
CPS024084y*	8.4	2850	23.94	0.5mmx2Px11Ts		
CPS024085y*	8.5	2820	23.97	0.5mmx2Px11Ts		
CPS024087y*	8.7	2750	23.925	0.5mmx2Px11Ts		
CPS024088y*	8.8	2720	23.936	0.5mmx2Px11Ts		
CPS024090y*	9.0	2660	23.94	0.5mmx2Px11Ts		
CPS024092y*	9.2	2600	23.92	0.5mmx2Px11Ts		
CPS024093y*	9.3	2580	23.994	0.5mmx2Px11Ts		
CPS024095y*	9.5	2520	23.94	0.5mmx2Px11Ts		
CPS024096y*	9.6	2500	24	0.5mmx2Px11Ts		
CPS024097y*	9.7	2470	23.959	0.5mmx2Px11Ts		



CPS024100y*	10.0	2400	24	0.5mmx2Px11Ts
CPS024102y*	10.2	2350	23.97	0.5mmx2Px11Ts
CPS024103y*	10.3	2330	23.999	0.5mmx2Px11Ts
CPS024105y*	10.5	2280	23.94	0.5mmx2Px11Ts
CPS024107y*	10.7	2240	23.968	0.5mmx2Px11Ts
CPS024110y*	11.0	2180	23.98	0.5mmx2Px11Ts
CPS024113y*	11.3	2120	23.956	0.5mmx2Px11Ts
CPS024115y*	11.5	2080	23.92	0.5mmx2Px11Ts
CPS024117y*	11.7	2050	23.985	0.5mmx2Px11Ts
CPS024120y*	12.0	2000	24	0.5mmx2Px11Ts
CPS024123y*	12.3	1950	23.985	0.5mmx2Px11Ts
CPS024125y*	12.5	1920	24	0.5mmx2Px11Ts
CPS024126y*	12.6	1900	23.94	0.5mmx2Px11Ts
CPS024127y*	12.7	1880	23.876	0.5mmx2Px11Ts
CPS024130y*	13.0	1840	23.92	0.5mmx2Px11Ts
CPS024135y*	13.5	1770	23.895	0.5mmx2Px11Ts
CPS024140y*	14.0	1710	23.94	0.5mmx2Px11Ts
CPS024145y*	14.5	1650	23.925	0.5mmx2Px11Ts
CPS024150y*	15.0	1600	24	0.5mmx2Px11Ts
CPS024155y*	15.5	1540	23.87	0.4mmx23Ts
CPS024160y*	16.0	1500	24	0.4mmx23Ts
CPS024165y*	16.5	1450	23.925	0.4mmx23Ts
CPS024170y*	17.0	1410	23.97	0.4mmx23Ts
CPS024175y*	17.5	1370	23.975	0.4mmx23Ts
CPS024180y*	18.0	1330	23.94	0.4mmx23Ts
CPS024185y*	18.5	1290	23.865	0.4mmx23Ts
CPS024187y*	18.7	1280	23.936	0.4mmx23Ts
CPS024190y*	19.0	1260	23.94	0.4mmx23Ts
CPS024195y*	19.5	1230	23.985	0.4mmx23Ts
CPS024200y*	20.0	1200	24	0.4mmx23Ts
CPS024205y*	20.5	1170	23.985	0.4mmx23Ts
CPS024210y*	21.0	1140	23.94	0.4mmx23Ts
CPS024215y*	21.5	1110	23.865	0.4mmx23Ts
CPS024220y*	22.0	1090	23.98	0.4mmx23Ts
CPS024225y*	22.5	1060	23.85	0.4mmx23Ts
CPS024230y*	23.0	1040	23.92	0.4mmx23Ts
CPS024235y*	23.5	1020	23.97	0.4mmx23Ts
CPS024240y*	24.0	1000	24	0.4mmx23Ts

Note: The products are differents of the output voltage, current, power and Transformer secondary winding. But the PCB boards are identical.



1.4. Independent Operation Modes

The basic operation modes are:

1.4.1. Full Load

- 1.4.2. Half Load
- 1.4.3. No Load



2. TEST SITES

2.1. Test Facilities		
EMC Lab	:	Certificated by TUV Rheinland, Germany. Date of registration: July 28, 2003
		Certificated by FCC, USA Registration No.: 502831 Date of registration: February 09, 2009
		Certificated by VCCI, Japan Registration No.: R-2527 & C-2770 Date of registration: March 23, 2007
		Certificated by CNAL, CHINA Registration No.: L1744 Date of registration: November 25, 2004
		Certificated by Intertek ETL SEMKO Registration No.: TMP-013 Date of registration: June 11, 2005
		Certificated by TUV/PS, Hong Kong Date of registration: December 1, 2005
		Certificated by Industry Canada Registration No.: 5936A Date of registration: March 4, 2009
		Certificated by ATCB, America Date of registration: August 03, 2006
Name of Firm	:	NS Technology Co., Ltd.
Site Location	:	Chenwu Industrial Zone, Houjie Town, Dongguan City, Guangdong, China



2.2. List of Test and Measurement Instruments

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Test Receiver	Rohde & Schwarz	ESCS30	100199	May 25,08	May 25,09
Artificial Mains Network	Rohde & Schwarz	ESH2-Z5	100071	May 25,08	May 25,09
Artificial Mains Network (AUX)	Kyoritsu	KNW-407	8-1579-1	Jan.19,09	Jan.19,10
Coaxial Switch	Anritsu	MP59B	6200530578	May 2,09	May 2,10

2.2.1. For conducted emission at the mains terminals test

2.2.2. For disturbance power test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Test Receiver	Rohde & Schwarz	ESCS30	100199	May 25,08	May 25,09
Absorbing Clamp	Rohde & Schwarz	MDS-21	100084	May 25,08	May 25,09
Coaxial Switch	Anritsu	MP59B	6200530578	May 2,09	May 2,10

2.2.3. For harmonic current emissions and voltage fluctuations/flicker test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Analyzer	California Instrument	PACS-1	72134	May 27,08	May 27,09
Voltage Source	California Instrument	5001ix-400	55194	May 27,08	May 27,09

2.2.4. For electrostatic discharge immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
ESD Generator	HAEFELY	PESD1610	H301530	May 27,08	May 27,09

2.2.5. For electrical fast transient/burst immunity test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EFT Generator	HAEFELY	PEFT4010	150546	May 27,08	May 27,09
EFT Coupling Clamp	HAEFELY	IP4A	150407	May 27,08	May 27,09



3. TEST SET-UP AND OPERATION MODES

- 3.1. Principle of Configuration Selection
 - **Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.
 - **Immunity:** The equipment under test (EUT) was configured to the representative operating mode and conditions.
- 3.2. Block Diagram of Test Set-up



(EUT: Switching Power Supply)

3.3. Test Operation Mode and Test Software

Refer to Test Setup in clause 4 & 5.

- 3.4. Special Accessories and Auxiliary Equipment None.
- 3.5. Countermeasures to Achieve EMC Compliance None.



4. EMISSION TEST RESULTS

4.1. Conducted Emission at the Mains Terminals Test

RESULT	:	Pass
Test procedure	:	EN 55013:2001+A1:2003+ A2:2006
Frequency range	:	0.15~30MHz
Test Site	:	Shielded Room
Limits	:	EN 55013:2001+A1:2003+ A2:2006

Test Setup

Date of test	:	May 13, 2009
Model No.	:	CPS0242401000, CPS0240504000, CPS0240753200
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full / Half / No Load

The EUT was put on a wooden table which was 0.8metre high above the ground and connected to the AC mains through a Artificial Mains Network (A.M.N). The mains lead in excess of 0.8m separating the EUT from the AMN was folded back and forth parallel to the lead so as to form a bundle with a length of 0.3m to 0.4m.

The EUT was kept more than 0.4m from any other earthed conducting surface. Both sides of AC line were checked to find out the maximum conducted emission levels according to the test procedure during conducted emission test.

The bandwidth of the test receiver (R&S ESCS30) was set at 9 kHz.

The frequency range from 150 kHz to 30 MHz was investigated.

The test data of the worst case condition(s) was reported on the following page. All the scanning waveform were attached within Appendix I.



Test Data

EUT:	Switching Power Supply	Temperature:	25.5 °C
M/N:	CPS0242401000	Humidity:	55 %
Test Mode:	Full Load	Test Engineer:	Angus

Conducted Emission at the Mains Terminals						
Frequency]	Reading (dBµ	Limit (dBµV)		
(MHz)	Quasi-Peak	Average	Ports	Quasi-Peak	Average	
0.16	60.5	51.4	Neutral	65.5	55.5	
0.33	47.6	38.7	Neutral	59.6	49.6	
0.59	44.3	35.6	Neutral	56.0	46.0	
1.04	42.1	34.7	Neutral	56.0	46.0	
2.03	43.5	34.9	Neutral	56.0	46.0	
11.20	35.3	27.8	Neutral	60.0	50.0	
0.16	60.8	51.7	Line	65.5	55.5	
0.22	50.2	41.2	Line	62.9	52.9	
0.32	47.1	37.5	Line	59.8	49.8	
0.59	43.2	34.2	Line	56.0	46.0	
1.09	42.3	35.9	Line	56.0	46.0	
3.68	43.0	33.8	Line	56.0	46.0	

Note: Test uncertainty: ± 1.99 dB at a level of confidence of 95%.



4.2. Disturbance Power Test

RESULT	:	Pass
Test procedure	:	EN 55013:2001+A1:2003+ A2:2006
Frequency range	:	30~300MHz
Test Site	:	Shielded Room
Limits	:	EN 55013:2001+A1:2003+ A2:2006

Test Setup

Date of test	:	May 15, 2009
Model No.	:	CPS0242401000, CPS0240504000, CPS0240753200
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full / Half / No Load

The EUT was placed on a non-metallic table of 0.8m of height above the floor and at least 0.4m from other metallic objects and from any person.

The lead to be measured was stretched in a straight horizontal line for a length sufficient to accommodate the absorbing clamp and to permit the necessary adjustment of its position for turning. The absorbing clamp was placed around the lead to be measured, with its current transformer towards the EUT, so as to measure a quantity proportional to the disturbance power on the lead.

At each test frequency the absorbing clamp was moved along the lead until the maximum value was found between a position adjacent to the EUT and a distance of about a half wavelength from it. The connected leads were extended to have a length of 6m.

The bandwidth of the test receiver(R&S ESCS30) was set at 120 kHz.

The test data of the worst case condition(s) was reported on the following page. All the scanning waveform were attached within Appendix II.



Test Data

EUT:	Switching Power Supply	Temperature:	25.5 °C
M/N:	CPS0242401000	Humidity:	55 %
Test Mode:	Full Load	Test Engineer:	Angus
Test Line:	AC Line		

Disturbance Power						
Frequency	Quasi-Peak	Limits	Average	Limits		
(MHz)	(dBpW)	(dBpW)	(dBpW)	(dBpW)		
31.89	36.4	45.1	31.4	35.1		
61.59	25.1	46.2	20.3	36.2		
71.85	27.4	46.6	22.5	36.6		
85.89	23.5	47.1	19.8	37.1		
101.01	27.4	47.6	22.3	37.6		
192.00	21.1	51.0	17.9	41.0		

Note: Test uncertainty: ± 3.15 dB at a level of confidence of 95%.



4.3. Harmonic Current Emissions on AC Mains Test

RESULT	:	Pass
Test procedure	:	EN 61000-3-2:2006
Measured harmonics	:	$1 \sim 40$ th
Limits	:	EN 61000-3-2:2006

There is no need for Harmonics test to be performed on this product(rated power is less than 75W) in accordance with EN 61000-3-2:2006.

For further details, please refer to Clause 7 of EN 61000-3-2:2006 which states:

"For the following categories of equipment, limits are not specified in this edition of the standard:

- equipment with a rated power of 75W or less, other than lighting equipment."



RESULT	:	Pass
Test procedure	:	EN 61000-3-3:1995+A1:2001+A2:2005
Limits	:	EN 61000-3-3:1995+A1:2001+A2:2005
Test Setup		
Date of test	:	May 18, 2009
Model No.	:	CPS0242401000, CPS0240504000, CPS0240753200
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full / Half / No Load

4.4. Voltage Fluctuations and Flicker on AC Mains Test

The test data of the worst case condition(s) was reported on the page below.

Test Data

EUT:	Switching Power Supply	Temperature:	25.5 °C
M/N:	CPS0242401000	Humidity:	55 %
Test Mode:	Full Load	Test Engineer:	Angus

Voltage Fluctuation	Limit	Value	
Relative Voltage Change Characteristic d(t) (dc>3%)	500ms	0ms	
Maximum Relative Voltage Change dmax	4%	0.00	
	6%	/	
	7%	/	
Relative Steady-state Voltage Change dc	3.3%	0.00	

Flicker	Limit	Value
Short-term Flicker Indicator Pst	1.0	0.083
Long-term Flicker Indicator Plt	0.65	/



5. IMMUNITY TEST RESULT

5.1. Description of Performance Criteria:

Performance criteria A

The equipment shall continue to operate as intended during the test.

No change of actual operating state is allowed as a result of the application of the test. Multifunction equipment shall for each function meet the relevant requirements.

Evaluation is carried out for audio and video functions.

The equipment is supposed to operate as intended if the criteria of clause 4.1.1.1 and/or 4.1.1.2 of standard EN 55020:2007 are fulfilled.

Performance criteria B

The equipment shall continue to operate as intended after the test. No loss of function is allowed after the test when the apparatus is used as intended, but failures which are recovered automatically but which cause temporary delay in processing, are permissible. No change of actual operating state for example change of channel or stored data and settings is allowed as a result of the application of the test. During the test, degradation of performance is allowed.



5.2. Electrostatic Discharge Immunity Test

RESULT	:	Pass
Test procedure	:	EN 55020:2007
Basic standard	:	EN 61000-4-2:1995+A1:1998+A2:2001
Test specification	:	EN 55020:2007 (Table 15)
		+/-4.0kV(Contact discharge)
		+/-8.0kV(Air discharge)
Number of discharges	:	\geq 10(Air discharge for single polarity discharge)
		\geq 10 (Contact discharge for single polarity discharge)
Polarity	:	Positive/Negative
Performance criterion	:	В
Test Setup		

—		
Date of test	:	May 15, 2009
Model No.	:	CPS0242401000, CPS0240504000, CPS0240753200
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full Load
Temperature	:	25.5 °C
Humidity	:	55 %

Table 1: Electrostatic Discharge Immunity Test Result

Discharge Location		Type of discharge	Result
Slot	4 points	Air	Pass
DC Port	1 point	Contact	Pass
НСР	4 points	Contact	Pass
VCP	4 points	Contact	Pass

Remark: 1. No obvious change of function was found after test.

2. Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).



RESULT	:	Pass
Test procedure	:	EN 55020:2007
Basic standard	:	EN 61000-4-4:2004
Pulseform	:	Tr/Th=5/50ns
Repetition Frequency	:	5kHz
Test Duration	:	120s
Performance criterion	:	В
Test Setup		
Date of test	:	May 15, 2009
Model No.	:	CPS0242401000, CPS0240504000, CPS0240753200
Input Voltage	:	AC 230V/50Hz
Operation Mode	:	Full Load
Temperature	:	25.5 °C
Humidity	:	55 %

5.3. Electrical Fast Transient/Burst Immunity Test

The EUT and its simulators were placed 0.8 m high above the ground reference plane which was a minimum 2m*2m metallic sheet with 0.65mm minimum thickness. This reference ground plane shall project beyond the EUT by at least 0.1 m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

For power input port:

The EUT was connected to the power mains by using a coupling device which coupled the EFT interference signal to AC power lines. Both polarities of the test voltage were applied during compliance test and the duration of the test were 2mins.

Coupling Ports		Coupling Voltage	Inject Method	Result
	L	+/-1kV		Pass
AC Power Ports	N	+/-1kV	Direct	Pass
	L-N	+/-1kV]	Pass

 Table 2: Electrical Fast Transient/Burst Immunity Test Result

Remark: No obvious change of function was found after test.



6. PHOTOGRAPHS OF TEST SET-UP

6.1.Set-up for conducted emission at the mains terminals test



6.2.Set-up for disturbance power test





6.3.Set-up for harmonic current and voltage fluctuations/flicker test



6.4.Set-up for electrostatic discharge immunity test





6.5.Set-up for electrical fast transient/burst immunity test





7. PHOTOGRAPHS OF THE EUT

Figure 1 General Appearance of the EUT



Figure 2 General Appearance of the EUT



Figure 3 General Appearance of the PCB M/N:CPS0242401000



Figure 4 General Appearance of the PCB M/N:CPS0242401000





Figure 5 General Appearance of the PCB M/N:CPS0240504000



Figure 6 General Appearance of the PCB M/N: CPS0240504000





Figure 7 General Appearance of the PCB M/N:CPS0240753200



Figure 8 General Appearance of the PCB M/N: CPS0240753200





APPENDIX I











































APPENDIX II

























