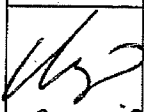
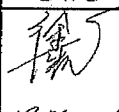


SWS1000L

TEST DATA

IEC61000 SERIES

DWG. No. PA578-58-01		
APPD	CHK	DWG
 19 Mar 08	Leag 19 Mar 08	 19 Mar 08

INDEX

	PAGE
1. Electrostatic Discharge Immunity Test (IEC61000-4-2).....	R-1
2. Radiated Radio-Frequency Electromagnetic Field Immunity Test (IEC61000-4-3).....	R-2
3. Electrical Fast Transient / Burst Immunity Test (IEC61000-4-4).....	R-3
4. Surge Immunity Test (IEC61000-4-5).....	R-4
5. Conducted Disturbances Induced by Radio-Frequency Field Immunity Test (IEC61000-4-6).....	R-5
6. Power Frequency Magnetic Field Immunity Test (IEC61000-4-8).....	R-6
7. Voltage Dips, Short Interruptions Immunity Test (IEC61000-4-11).....	R-7

※ Test results are typical data. Nevertheless the following results are considered to be actual capability data because all units have nearly the same characteristics.

1. Electrostatic Discharge Immunity Test (IEC61000-4-2)

MODEL : SWS1000L

(1) Equipment Used

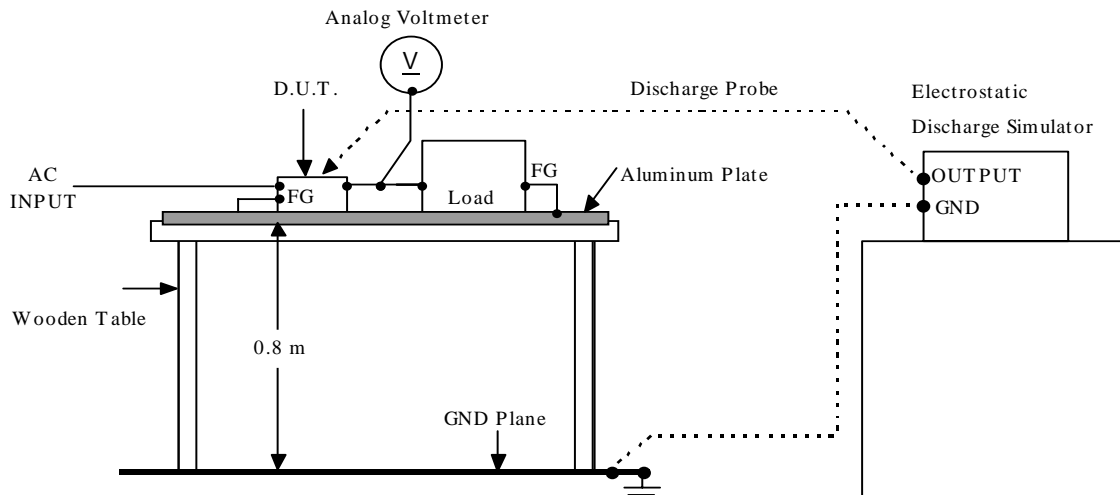
Electrostatic Discharge Simulator : NSG435 (SCHAFFNER)
 Discharge Resistance : 330Ω Capacitor : 150pF

(2) Test Conditions

Input Voltage : 115, 230VAC Output Voltage : Rated
 Output Current : 100% Polarity : +, -
 Number of Tests : 10 times Ambient Temperature : 25°C
 Discharge Interval : >1 Second

(3) Test Method and Device Test Point

Contact Discharge : FG, Case Screw
 Air Discharge : Input and Output Terminal, FG, Case Screw



(4) Acceptable Conditions

1. Output voltage regulation not to exceed $\pm 5\%$ of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Results

Contact Discharge (kV)	SWS1000L-24	Air Discharge (kV)	SWS1000L-24
2	PASS	2	PASS
4	PASS	4	PASS
6	PASS	8	PASS

2. Radiated Radio-Frequency Electromagnetic Field Immunity Test (IEC61000-4-3)

MODEL : SWS1000L

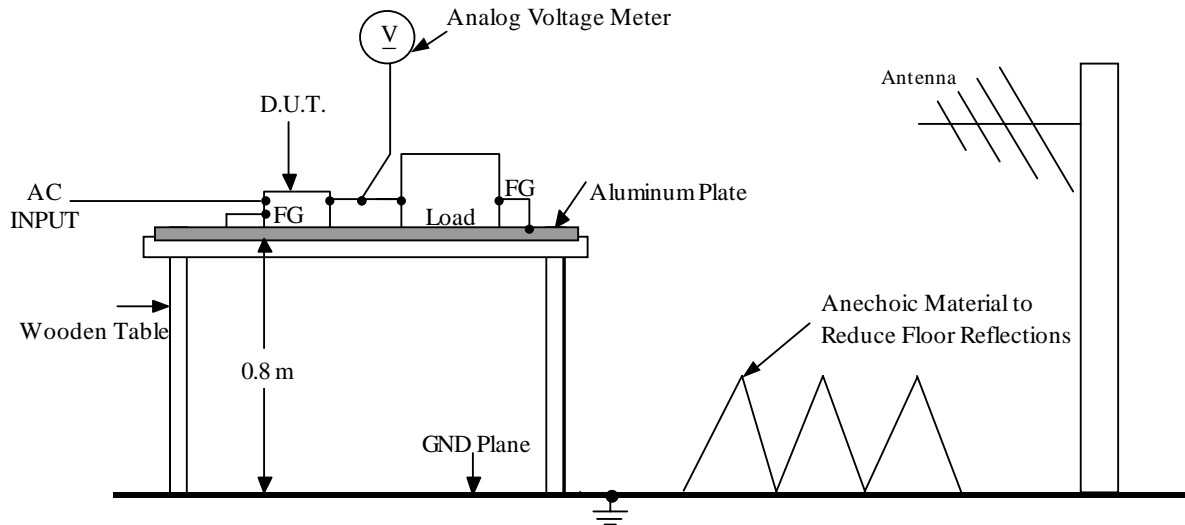
(1) Equipment Used

Test Laboratory : TUV SUD PSB Singapore Accreditation Lab.

(2) Test Conditions

Input Voltage	: 115, 230VAC	Output Voltage	: Rated
Output Current	: 100%	Amplitude Modulated	: 80%, 1kHz
Electromagnetic Frequency	: 80~1000MHz	Ambient Temperature	: 25°C
Distance	: 3.0m	Wave Angle	: Horizontal and Vertical
Sweep Conditions	: 1.0% Step Up, 3.0 Seconds Hold		
Test Angle	: Front, Back, Left, Right, Top, Bottom		

(3) Test Method



(4) Acceptable Conditions

1. Output voltage regulation not to exceed $\pm 5\%$ of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Results

Radiation Field Strength (V/m)	SWS1000L-24
1	PASS
3	PASS
10	PASS

3. Electrical Fast Transient / Burst Immunity Test (IEC61000-4-4)

MODEL : SWS1000L

(1) Equipment Used

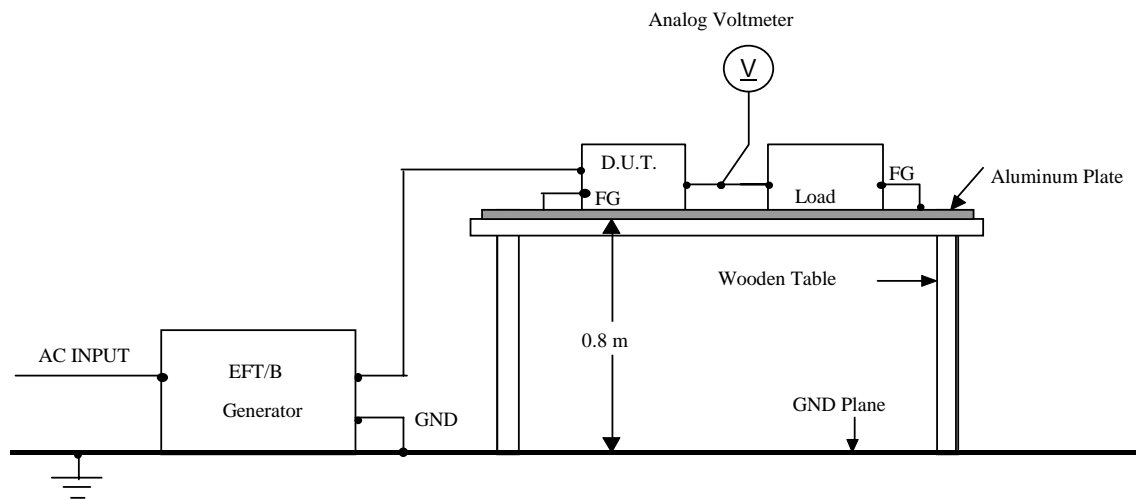
EFT/B (Generator) : NSG-2025 (SCHAFFNER)

(2) Test Conditions

Input Voltage	: 115, 230VAC	Output Voltage	: Rated
Output Current	: 100%	Polarity	: +, -
Number of Tests	: 3 times	Ambient Temperature	: 25°C
Test time	: 1 minute		

(3) Test Method and Device Test Points

Apply to (N,L,FG), (NL), (N), (L), (FG)



(4) Acceptable Conditions

1. Output voltage regulation not to exceed $\pm 5\%$ of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Results

Test Voltage (kV)	Repetition Rate (kHz)	SWS1000L-24
0.5	5.0	PASS
1.0	5.0	PASS
2.0	5.0	PASS

4. Surge Immunity Test (IEC61000-4-5)

MODEL : SWS1000L

(1) Equipment Used

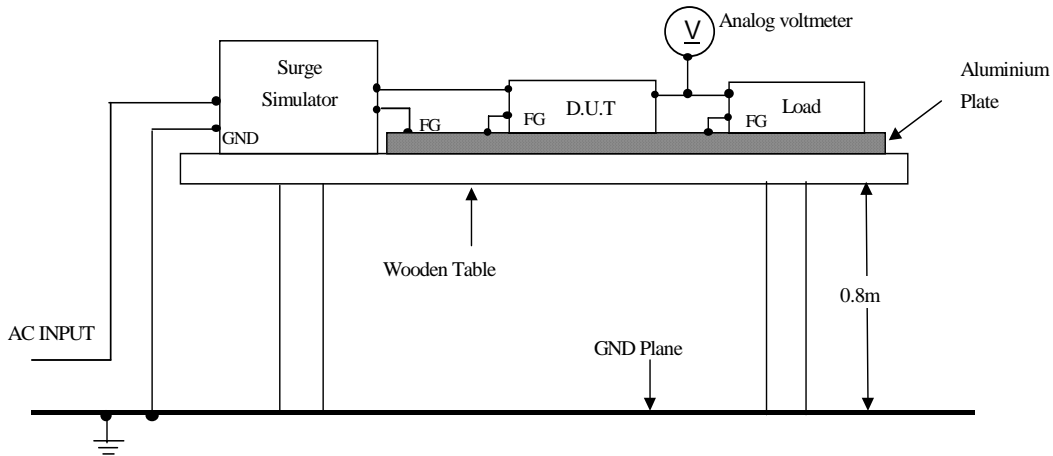
Surge Simulator	: NSG-651	(SCHAFFNER)
Coupling Impedance	: Common 12Ω	Coupling Capacitance : Common 9μF
	Normal 2Ω	Normal 18μF

(2) Test Conditions

Input Voltage	: 115, 230VAC	Output Voltage	: Rated
Output Current	: 0%, 100%	Number of Tests	: 5 times
Polarity	: +, -	Mode	: Common, Normal
Phase	: 0, 90 deg	Ambient Temperature	: 25°C

(3) Test Method and Device Test Points

Apply to Common mode (N-FG, L-FG) and Normal mode (N-L).



(4) Acceptable Conditions

1. Output voltage regulation not to exceed $\pm 5\%$ of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Results

Test Voltage (kV) Common	SWS1000L-24	Test Voltage (kV) Normal	SWS1000L-24
0.5	PASS	0.5	PASS
1.0	PASS	1.0	PASS
2.0	PASS	2.0	PASS
4.0	PASS		

5. Conducted Disturbances Induced by Radio-Frequency Field Immunity Test (IEC61000-4-6)

MODEL : SWS1000L

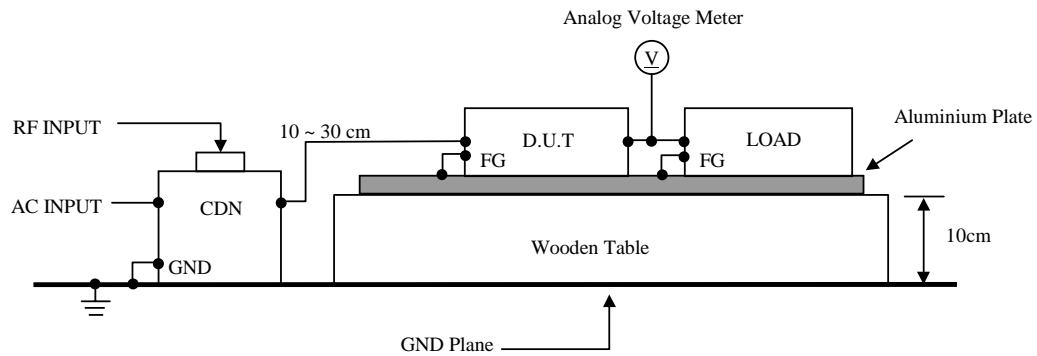
(1) Equipment Used

Test Laboratory : TUV SUD PSB Singapore Accreditation Lab.

(2) Test Conditions

Input Voltage	: 115, 230VAC	Output Voltage	: Rated
Output Current	: 100%	Electromagnetic Frequency	: 150kHz~80MHz
Ambient Temperature	: 25°C		
Sweep Conditions	: 1.0% Step Up, 3.0 Seconds Hold		

(3) Test Method



(4) Acceptable Conditions

1. Output voltage regulation not to exceed $\pm 5\%$ of initial (before test) value during test.
2. Output voltage to be within regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Results

Test Voltage (V)	SWS1000L-24
1	PASS
3	PASS
10	PASS

6. Power Frequency Magnetic Field Immunity Test (IEC61000-4-8)

MODEL : SWS1000L

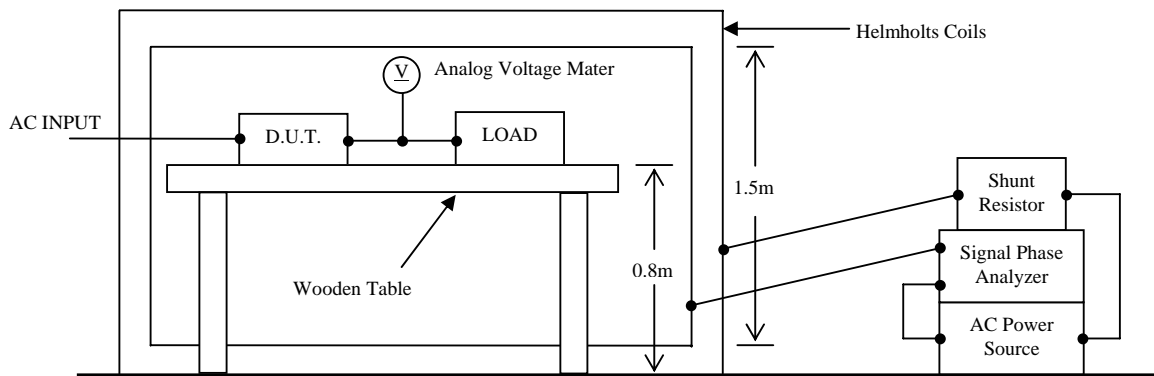
(1) Equipment Used

Test Laboratory : TUV SUD PSB Singapore Accreditation Lab.

(2) Test Conditions

Input Voltage	: 115, 230VAC	Output Voltage	: Rated
Output Current	: 100%	Magnetic Frequency	: 50Hz
Test Time	: > 10 sec (Each direction)	Ambient Temperature	: 25°C
Direction	: X, Y, Z		

(3) Test Method and Device Test Point



(4) Acceptable Conditions

1. Output voltage regulation not to exceed $\pm 5\%$ of initial (before test) value during test.
2. Output voltage to be within output voltage regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) Test Result

Magnetic Field Strength (A/m)	SWS1000L-24
1	PASS
3	PASS
10	PASS
30	PASS

7. Voltage Dips, Short Interruptions Immunity Test (IEC61000-4-11)

MODEL : SWS1000L

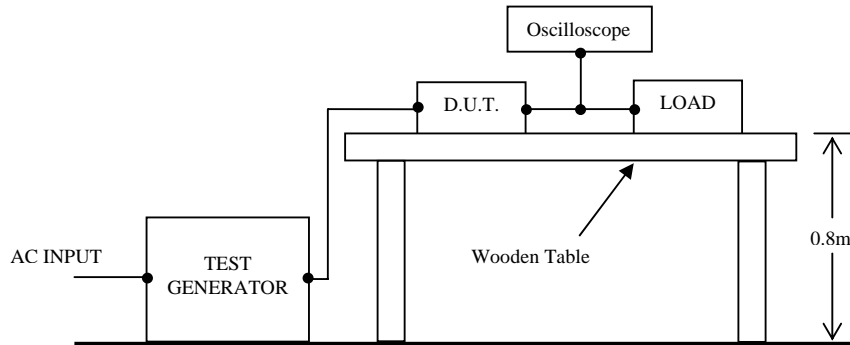
(1) Equipment Used

Test Generator : Programmable AC Source Model 61505 (CHROMA)

(2) Test Conditions

Input Voltage	: 115, 230VAC	Output Voltage	: Rated
Output Current	: 100%	Ambient Temperature	: 25°C
Number of Tests	: 3 times	Test Interval	: > 10 sec.

(3) Test Method and Device Test Point



(4) Acceptable Conditions

At Test level 70%

1. Output voltage regulation not to exceed $\pm 5\%$ of initial (before test) value during test.
2. Output voltage to be within output voltage regulation specification after the test.
3. Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

At Test level 40%, 0%

1. Output voltage to be within output voltage regulation specification after the test.
2. No discharge of fire or smoke.

(5) Test Result

Test Level	Dip Rate	Continue Time	SWS1000L-24
70%	30%	10ms	PASS
40%	60%	100ms	PASS
0%	100%	5000ms	PASS