

# MWS65

## TEST DATA IEC61000 SERIES

DWG No. FA001-58-01		
APPD	CHK	DWG
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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 : MWS65**

### (1) Equipment used

Electro static discharge simulator : ESS-2002EX (Noiseken)

Discharge resistance : 330Ω Capacity : 150pF

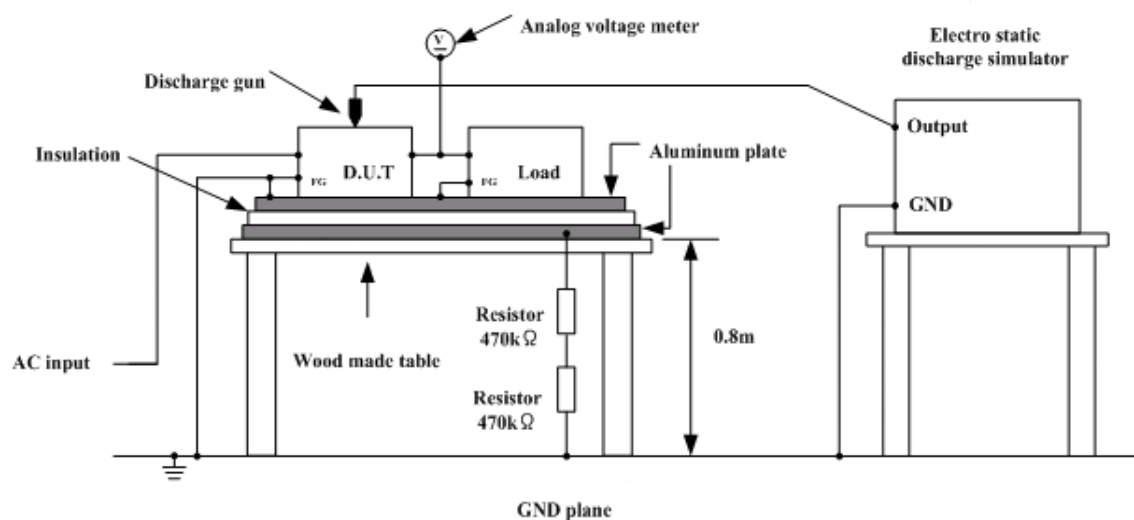
### (2) Test conditions

•Input voltage	: 115, 230VAC	•Output voltage	: Rated
•Output current	: 100%	•Polarity	: +, -
•Test times	: 10 Times	•Discharge interval	: > 1 Second
•Ambient temperature	: 25°C		

### (3) Test method and device test point

Contact discharge :  $\text{⚡}$ , mounting screw

Air Discharge : Input and output terminal,  $\text{⚡}$ , mounting screw



### (4) Acceptable conditions

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

### (5) Test result

Contact discharge (kV)	MWS65-5	MWS65-48	Air discharge(kV)	MWS65-5	MWS65-48
4	PASS	PASS	4	PASS	PASS
6	PASS	PASS	8	PASS	PASS
7.2	PASS	PASS	9.6	PASS	PASS

## 2. Radiated radio-frequency electromagnetic field immunity test (IEC61000-4-3)

**Model : MWS65**

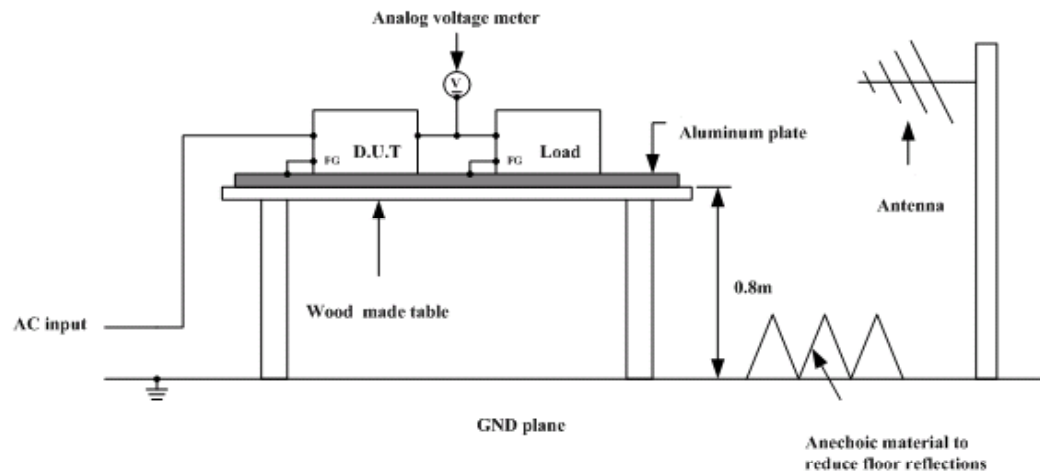
### (1) Equipment used

Signal generator : SMT03 (ROHDE & SCHWARZ)  
 Power meter : NRVD (ROHDE & SCHWARZ)  
 Power amplifier : CBA9413B (SCHAFFNER)  
 Biconilog Antenna : 3149(EMCO)

### (2) Test conditions

• Input voltage : 115, 230VAC • Output voltage : Rated  
 • Output current : 100% • Amplitude modulate : 80%, 1kHz  
 • Electromagnetic frequency : 80~2.5GHz • Ambient temperature : 25°C  
 • Wave angle : Horizontal and vertical • Distance : 3.0m  
 • Sweep condition : 1.0% step up, 2.8 seconds hold  
 • Test angle : Top/bottom, both sides, front/back

### (3) Test method



### (4) Acceptable conditions

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

### (5) Test result

Radiation field strength (V/m)	MWS65-5	MWS65-48
1	PASS	PASS
3	PASS	PASS
10	PASS	PASS

### 3. Electrical fast transient / burst immunity test (IEC61000-4-4)

**Model : MWS65**

**(1) Equipment used**

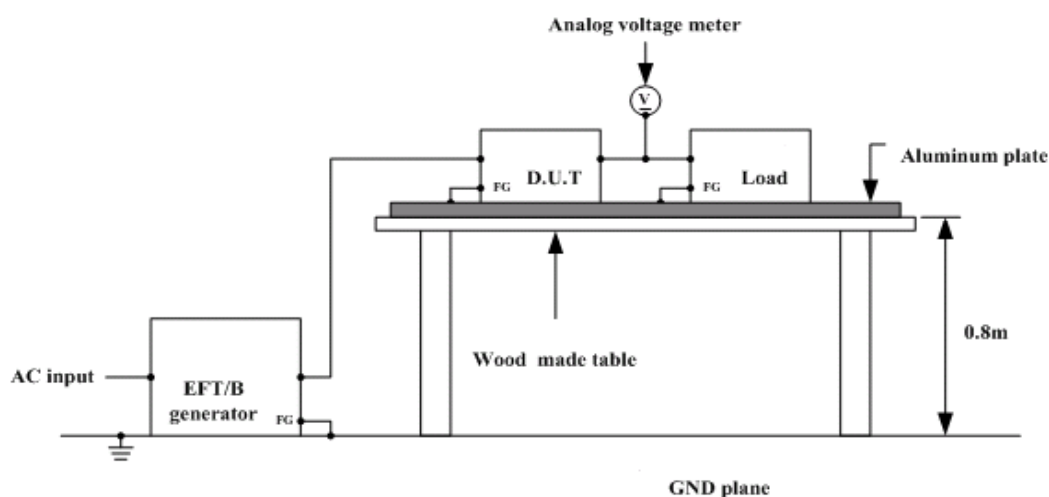
EFT/B generator : TARNSIENT 2000 (TARNSIENT)

**(2) Test conditions**

• Input voltage	: 115, 230VAC	• Output voltage	: Rated
• Output current	: 100%	• Test time	: 1 Minute
• Polarity	: +, -	• Ambient temperature	: 25°C
• Number of tests	: 3 Times	• Repetitive frequency	: 5kHz

**(3) Test method and device test point**

Apply to (N, L,  $\frac{\pm}{\square}$ ), (N, L), (N), (L), ( $\frac{\pm}{\square}$ ).



**(4) Acceptable conditions**

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

**(5) Test result**

Test voltage (kV)	Repetition rate (kHz)	MWS65-5	MWS65-48
2	5	PASS	PASS
2.2	5	PASS	PASS
2.4	5	PASS	PASS

#### 4. Surge immunity test (IEC61000-4-5)

**Model : MWS65**

**(1) Equipment used**

Surge generator : TARNSIENT 2000 (TARNSIENT)

Coupling impedance : Common 12Ω  
Normal 2Ω

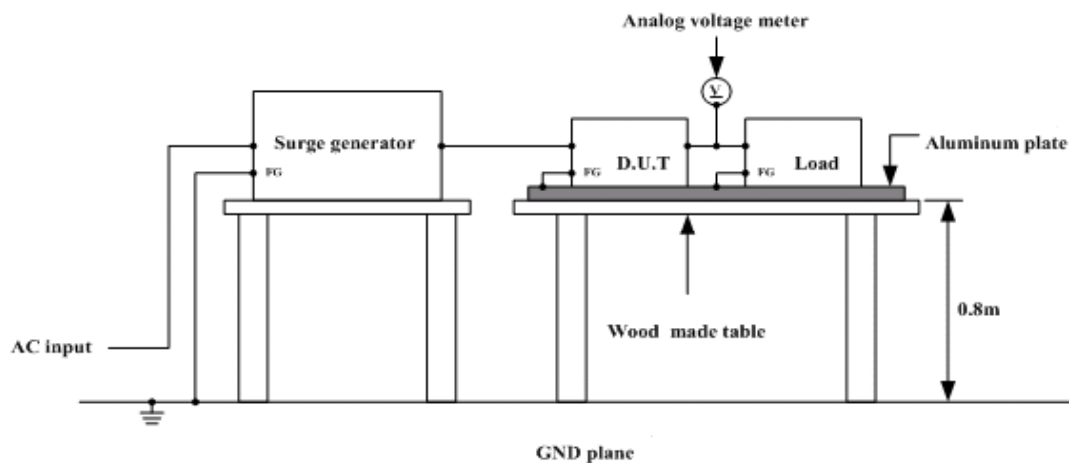
Coupling capacitance : Common 9μF  
Normal 18μF

**(2) Test conditions**

• Input voltage : 115, 230VAC      • Output voltage : Rated  
• Output current : 0, 100%      • Test times : 3 Times  
• Polarity : +, -      • Mode : Common and normal  
• Phase : 0, 90 deg      • Ambient temperatur : 25°C

**(3) Test method and device test points**

Apply to common mode (N- ⚡ , L- ⚡ ) and normal mode (N-L).



**(4) Acceptable conditions**

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

**(5) Test result**

Common			Normal		
Test voltage (kV)	MWS65-5	MWS65-48	Test voltage (kV)	MWS65-5	MWS65-48
1	PASS	PASS	1	PASS	PASS
2	PASS	PASS	1.2	PASS	PASS
2.4	PASS	PASS			

## 5. Conducted disturbances induced by radio-frequency field immunity test (IEC61000-4-6)

**Model : MWS65**

### (1) Equipment used

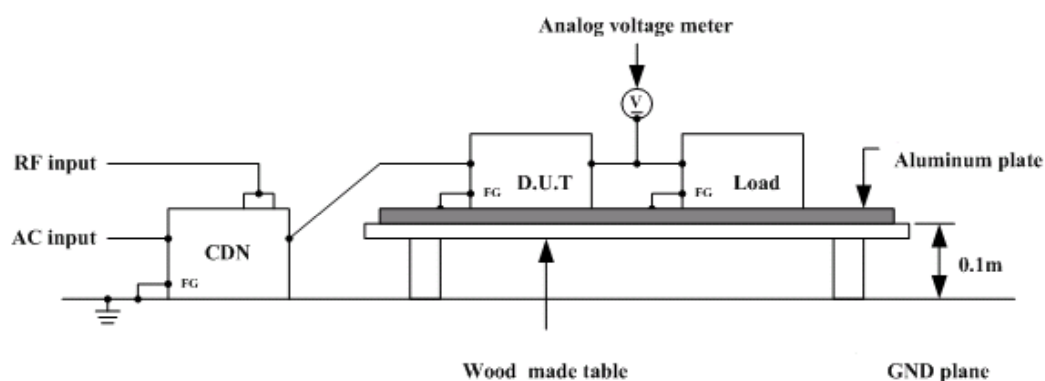
RF-Generator

: NSG 2070 (SCHAFFNER)

### (2) Test conditions

- Input voltage : 115, 230VAC
- Output voltage : Rated
- Output current : 100%
- Electromagnetic frequency : 150kHz~80MHz
- Ambient temperature : 25°C
- Sweep condition : 1.0% step up  
, 2.8 seconds hold

### (3) Test method



### (4) Acceptable conditions

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

### (5) Test result

Voltage level (V)	MWS65-5	MWS65-48
1	PASS	PASS
3	PASS	PASS
10	PASS	PASS

## 6. Power frequency magnetic field immunity test (IEC61000-4-8)

**Model : MWS65**

### (1) Equipment used

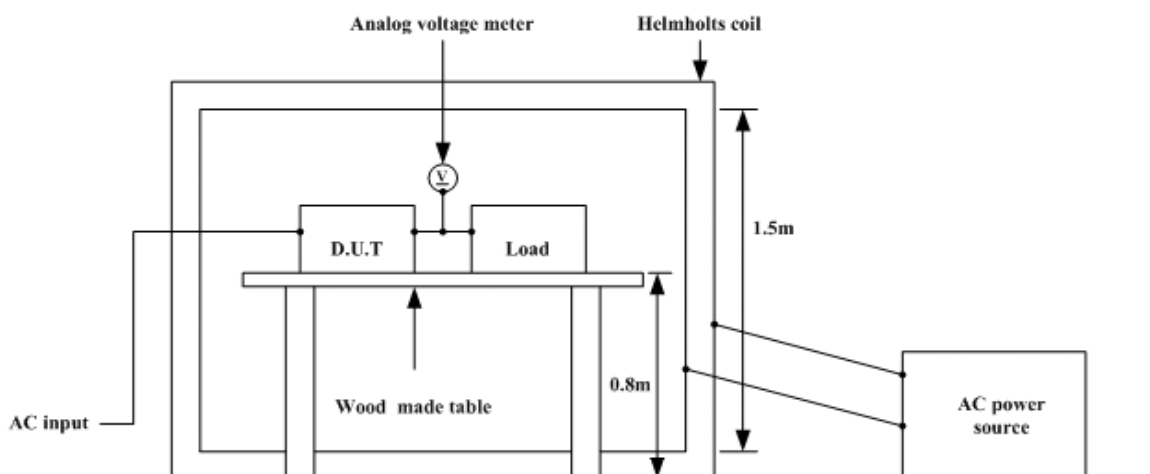
AC power source : NSG1007 (SCHAFFNER)

Helmholts coil : Induction coil interface (SCHAFFNER)

### (2) Test conditions

- Input voltage : 115, 230VAC
- Output voltage : Rated
- Output current : 100%
- Magnetic frequency : 50Hz/60Hz
- Ambient temperature : 25°C
- Direction : X, Y, Z
- Test time : More than 10 seconds (each direction)

### (3) Test method and device test point



### (4) Acceptable conditions

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

### (5) Test result

Magnetic field strength (A/m)	MWS65-5	MWS65-48
1	PASS	PASS
3	PASS	PASS
10	PASS	PASS
36	PASS	PASS



## 7. Voltage dips, short interruptions immunity test (IEC61000-4-11)

**Model : MWS65**

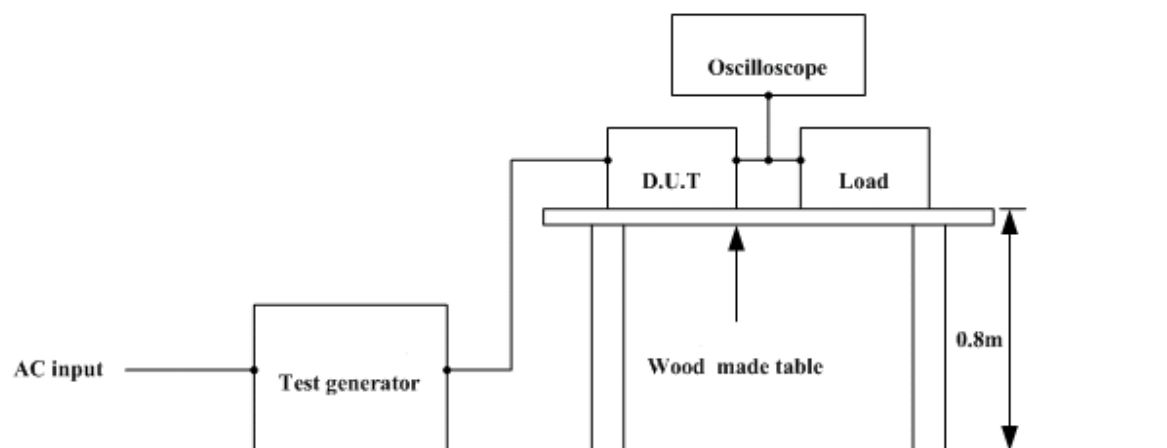
### (1) Equipment used

Test generator : TARNSIENT 2000 (TARNSIENT)

### (2) Test conditions

• Input voltage	: 115, 230VAC	• Output voltage	: Rated
• Output current	: 100%	• Ambient temperature	: 25°C
• Number of tests	: 3 Times	• Interval	: More than 10 seconds

### (3) Test method and device test point



### (4) Acceptable conditions

1. The output voltage must be within the regulation of specification after the test.
2. Smoke and fire must not occur.

### (5) Test result

Test level	Dip rate	Continue time	MWS65-5	MWS65-48
70%	30%	500ms	PASS	PASS
40%	60%	100ms (*1)	PASS	PASS
0%	100%	10ms	PASS	PASS
0%	100%	20ms (*2)	PASS	PASS
0%	100%	5000ms (*3)	PASS	PASS

\*1: When the input power is less than 200Vac, output voltage shut down. Then it recover again itself.

\*2: When the input power is less than 170Vac, output voltage shut down. Then it recover again itself.

\*3: When continue time is 5000ms, output voltage shut down. Then it recover again itself.