
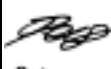
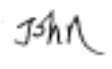


# DLP-PU/EJ

## TEST DATA

### IEC61000 SERIES

DWG No. CA738-58-01/EJ		
APPD	CHK	DWG
 15-Mar-04	 8-Mar-04	 26-Mar-04

# I N D E X

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

MODEL : DLP-PU/EJ

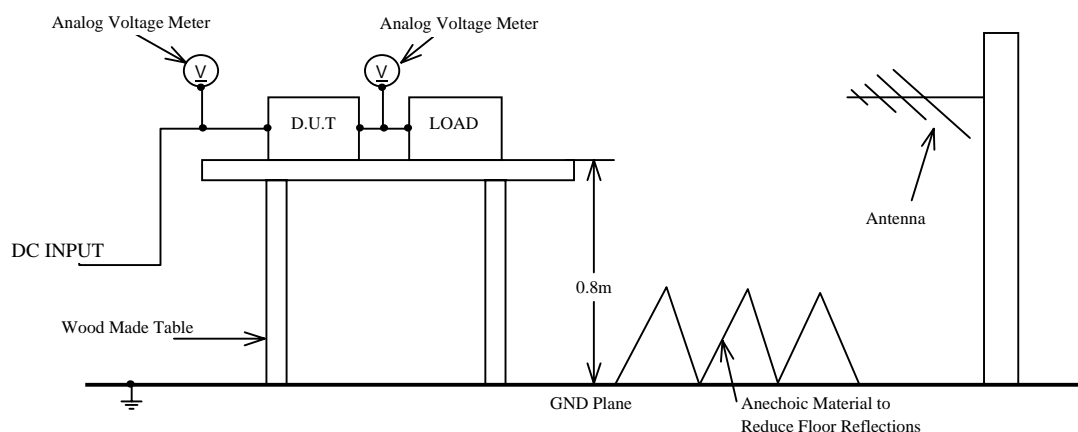
## (1) Equipment Used

- Signal Generator : 8648C (Hewlett Packard)
- Power Amplifier System : AK500-200 (Kalmus)
- Power Reflection Meter : NRT (Rohde & Schwarz)
- Power Head : NAP-Z6 (Rohde & Schwarz)
- Bilog Antenna : CBL6140 (Chase)

## (2) Test Conditions

- Input Voltage : 24VDC
- Output Current : 0A, 20A(100%)
- Frequency-range : 80~1000MHZ
- Distance of antenna -- EUT : 3 m
- Rate of sweep :  $1.5 \times 10^{-3}$  decades / sec
- Increment of sweep : 1.0% of fundamental frequency
- Test angle : Front, Back, Left and Right
- Output Voltage : Rated
- Amplitude modulated : 80%, 1kHz
- Ambient temperature : 25°C
- Wave angle : Horizontal and Vertical

## (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 Result

Radiation Field Strength (V/m)	DLP-PU/EJ
1	PASS
3	PASS
10	PASS

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

**MODEL : DLP-PU/EJ**

**(1) Equipment Used**

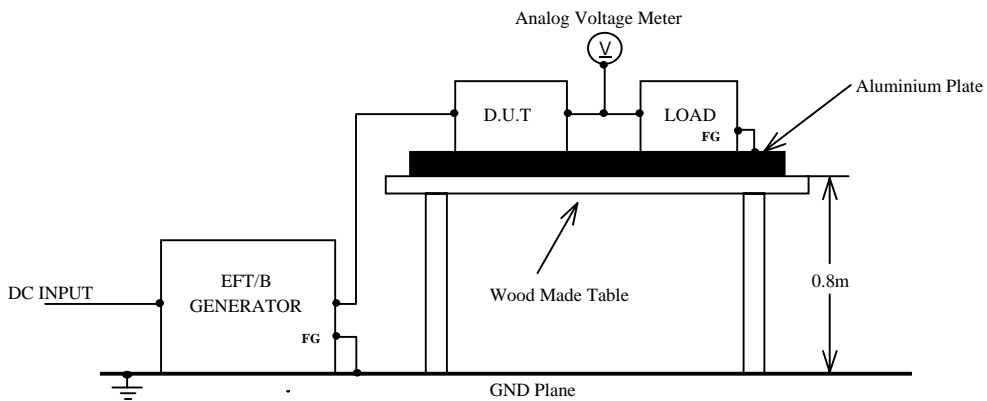
EFT/B Generator : FNS-100L (NOISEKEN)

**(2) Test Conditions**

- Input voltage : 24VDC
- Output current : 0A , 20A(100%)
- Polarity : + , -
- Number of tests : 3 times
- Output voltage : Rated
- Test time : 1 minute
- Ambient temperature : 25°C

**(3) Test Method and Device Test Point**

Apply to (A+,B+,-V), (A+,-V), (B+,-V), (A+), (B+), (-V)



**(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**

Test Voltage (kV)	Repetition Rate (kHz)	DLP-PU/EJ
0.5	5	PASS
1.0	5	PASS

### 3. Surge Immunity Test ( IEC 61000-4-5 )

MODEL : DLP-PU/EJ

#### (1) Equipment Used

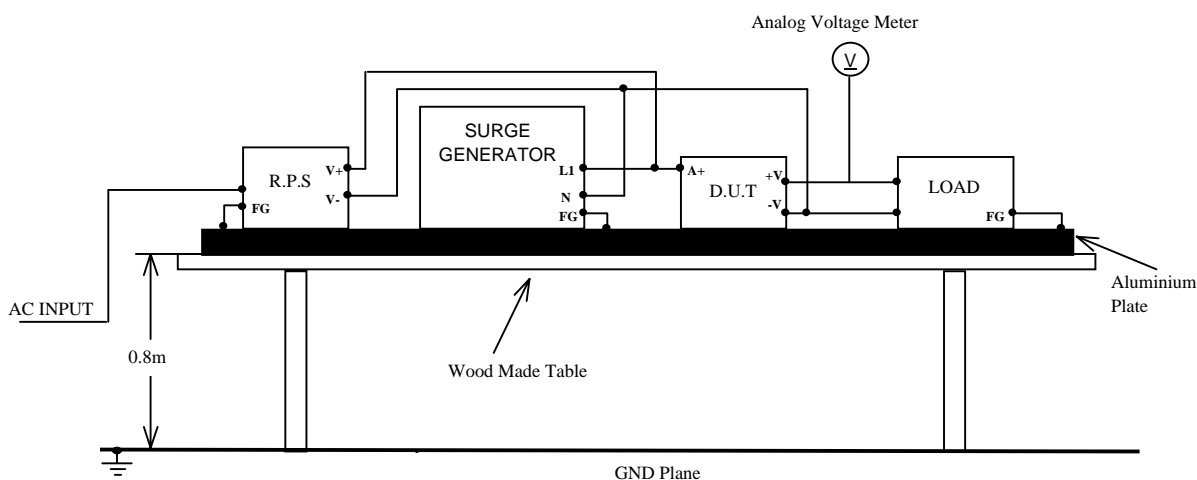
Surge Generator : NSG651 (SCHAFFNER)  
 Coupling Impedance : Common 12Ω Normal 2Ω  
 Coupling Capacitance : Common 9uF Normal 18uF

#### (2) Test Conditions

- Input Voltage : 24VDC
- Output Current : 0A, 20A(100%)
- Polarity : + , -
- Output Voltage : Rated
- Number of Tests : 10 times
- Mode : Common, Normal
- Ambient Temperature : 25°C

#### (3) Test Method and Device Test Point

Apply to Common mode( (A+) - FG, (-V) - FG ) and Normal mode( (A+) - (-V) )  
 Ensure the surge apply to DUT.



(\* R.P.S: Redundant Power Supply ; D.U.T: Device Under Test)

#### (4) Acceptable Conditions

1. Output voltage regulation not to exceed ±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 Result

Test Voltage ( kV ) Common	DLP-PU/EJ	Test Voltage (kV) Normal	DLP-PU/EJ
0.5	PASS	0.5	PASS
1.0	PASS	1.0	PASS
2.0	PASS		

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

MODEL : DLP-PU/EJ

##### (1) Equipment Used

- Signal Generator : SMG (Rohde & Schwarz)
- Power Amplifier : 116FC (Kalmus)
- Attenuator : 40-6-33 (Weinschel)
- CDN : TCDN801-M2, TCDN801-M3 (Toyo)
- EM Clamp : T/EM-801 (Toyo)

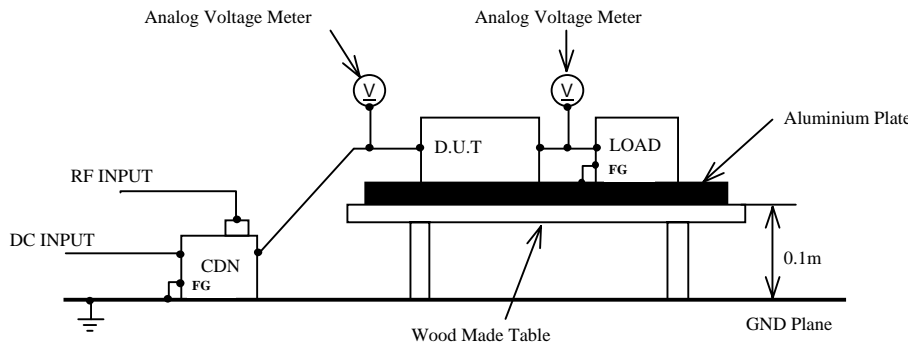
##### (2) Test Conditions

- Input Voltage : 24VDC
- Output Current : 0A, 20A(100%)
- Ambient temperature : 25°C
- Rate of sweep :  $1.5 \times 10^{-3}$  decades / sec
- Increment of sweep : 1.0% of fundamental frequency
- Output Voltage : Rated
- Frequency range : 150kHz~80MHz
- Amplitude modulated : 80%, 1kHz

##### (3) Test Method

TCDN801-M2 apply to (A+, -V)  
T/EM-801 apply to (+V, -V)

TCDN801-M3 apply to (A+, B+, -V)



##### (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 Result

Voltage Level ( V )	DLP-PU/EJ
1	PASS
3	PASS
10	PASS

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

**MODEL : DLP-PU/EJ**

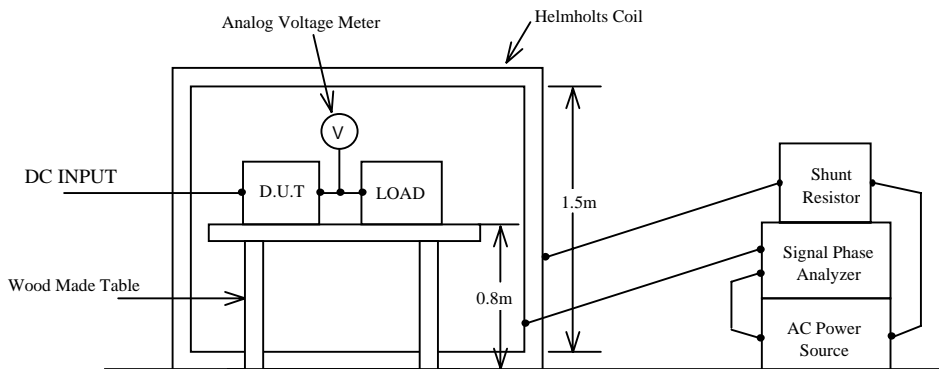
**(1) Equipment Used**

AC Power Source : 1501L (California Instrument)  
 Signal Phase Power Analyzer : PM100 (Voltech)  
 Shunt Resistor : 2.5Ω  
 Helmholts Coil : HHS5215 (Spulen)

**(2) Test Conditions**

- Input Voltage : 24VDC
- Output Current : 0A, 20A(100%)
- Test Time : More than 10sec(Each direction)
- Ambient Temperature : 25°C
- Output Voltage : Rated
- Magnetic Frequency : 50Hz
- Direction : X, Y, Z

**(3) Test Method and Device Test Point**



**(4) Acceptable Conditions**

1. Output voltage regulation not to exceed ±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 Result**

Magnetic Field Strength (A/m)	DLP-PU/EJ
1	PASS
3	PASS
10	PASS
30	PASS