

GSP 15kW/10kW

RELIABILITY

DATA

DWG: IA852-79-01		
APPD	CHK	DWG
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TDK-LAMBDA

INDEX	PAGE
1.MTBF; Calculated Value of MTBF	R-1
2.Vibration Test	R-2

The above data is typical value. As all units have nearly the same characteristics, the data to be considered as ability value.

M.T.B.F.

Calculation based on parts stress reliability projection of Telcordia (Bellcore)
 "Reliability Prediction Procedure for Electronic Equipment" Document number TR-322, Issue5)
 Individual failure λ_{SSi} is calculated from electrical stress and temperature rise of each device.

$$MTBF = \frac{1}{\lambda_{equip}} = \frac{1}{\pi_E \sum_{i=1}^m N_i \cdot \lambda_{SSi}} \times 10^9 \quad (\text{hours})$$

$$\lambda_{SSi} = \lambda_{Gi} \cdot \pi_{Qi} \cdot \pi_{Si} \cdot \pi_{Ti}$$

- λ_{equip} : Total Equipment failure rate (FITs = Failures in 10^9 hours)
- λ_{Gi} : Generic failure rate for the i th device
- π_{Qi} : Quality factor for the i th device
- π_{Si} : Stress factor for the i th device
- π_{Ti} : Temperature factor for the i th device
- m : Number of different device types
- N_i : Quantity of i th device type
- π_E : Equipment environmental factor

Conditions:

$T_a = 25^\circ\text{C}$

Gf - Ground, Fixed, Uncontrolled

For GSP15kW: M.T.B.F. = 63069 (HOURS)

For GSP10kW: M.T.B.F. = 94603 (HOURS)

6.VIBRATION TEST

GSP 15kW

MODEL: G600-25.5 3P400

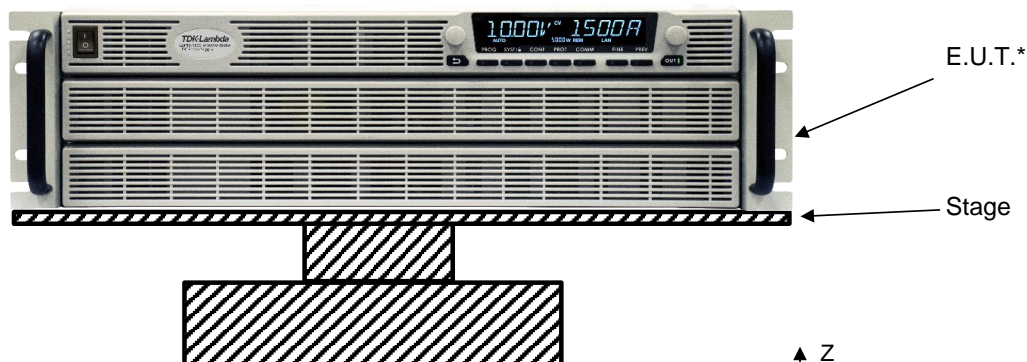
(1) Vibration test class

Frequency variable endurance test

(2) Equipment used

Name	Manufaturer	Model
Vibration Test System (Amplifier *SP +93-01111, Remote Control Panel *SP 9 3-00+11, Vibrator *SP +93-00511, Slip Table, Driver Bar, Pump, Fan, Head Expander)	Ling Dynamic Systems	V875
Precision Barometer, +70 - 1050 hPa	LUFFT Mess- und Regeltechnik GmbH	DKD-K-26701
Temp. & Humidity Meter, (-50 - *70) deg, (20 - 99)% RH	Mad Electronics	HTC-1
APEX SL VIBRATION CONTROLLER	Unholtz-Dickie	APEX SL
Isotron Accelerometer 101.2 mVlg	Dytran Instruments Inc.	3256A2
Isotron Accelerometer 101.7 mVlg	Dytran Instruments Inc.	3049E3

(3) Testing method



Test condition:

Random frequency 10Hz~500Hz
 Accelerator X: 0.24
 Y: 0.89
 Z: 1.25
 Direction X,Y,Z Y
 Test time 1H.each

*E.U.T. is fixed to vibrator surface by mounting straps

(4)Test Result

OK NG

Vin=400Vac; Iout=500A

Check item	Vout (V)	Ripple(mVp-p)	E.U.T.state
Directions \Initial			
Before test	600.108	190	O.K.
X	600.146	200	O.K.
Y	600.155	190	O.K.
Z	600.975	200	O.K.