GSPL 22.5kW / 15kW

RELIABILITY

DATA

DWG: IA992-79-01		
APPD	CHK	DWG
Yaniv Nisinman 29/09/2022	Barak Marmor 22/09/2022	Amit Zehavi 14/09/2022

TDK-LAMBDA

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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 SR-332,Issue 3)
Individual failure λss 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 in10^9 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
Ni	:	Quantity of *i* th device type
π E	:	Equipment environmental factor

Conditions:

Ta=25°C
Gf - Ground,Fixed,Uncontrolled

For GSPL22.5kW: **M.T.B.F. = 122387 (HOURS)**

For GSPL15kW: **M.T.B.F. = 183581 (HOURS)**

6.VIBRATION TEST

MODEL: GSPL40-564 3P208

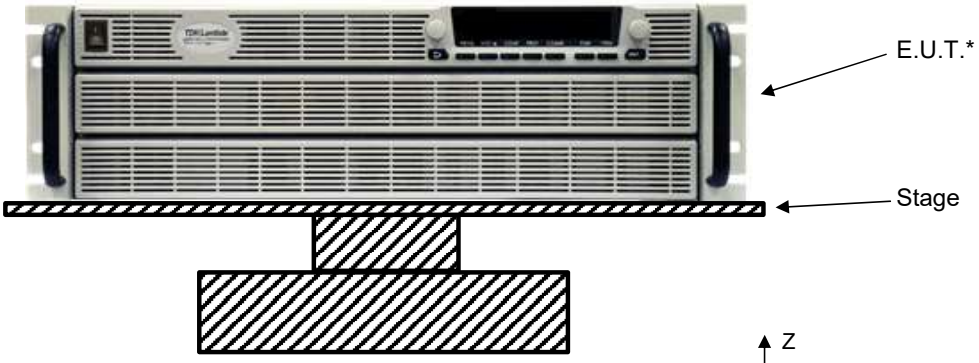
(1) Vibration test class

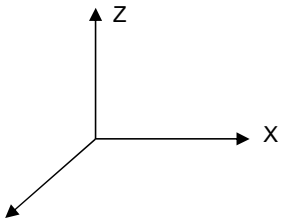
Frequency variable endurance test

(2) Equipment used

Name	Manufaturer	Model
Vibration Test System (Amplifier #SP6893-011/1, Remote Control Panel #SP6963-008/1, Vibrator #SP6893- 005/1, Slip Table, Driver Bar, Pomp, Fan, Head Expander)	Ling Dynamic Systems	V875
Temp. & Humidity Meter, (-50 - +70) deg, (20 - 99)% RH	Mad Electronics	HTC-1
APEX SL VIBRATION CONTROLLER	Unholtz-Dickie	Apex SL
Isotron Accelerometer 100 mV/g	Endevco	256-100

(3) Testing method





Test conditions:

Random frequency 10Hz~500Hz

Acceleration X: 0.24

Y: 0.89

Z: 1.25

Direction X,Y,Z

Test time 1H.each

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

(4)Test Result OK NG

Vin=200Vac; Iout=564A

Check item	Vout (V)	Ripple(mVp-p)	E.U.T.state
Directions \Initial			
Before test	40.000	45.3	O.K.
X	40.025	43.6	O.K.
Y	40.025	43.6	O.K.
Z	40.025	43.6	O.K.

6.VIBRATION TEST

MODEL: GSPL600-25 3P480

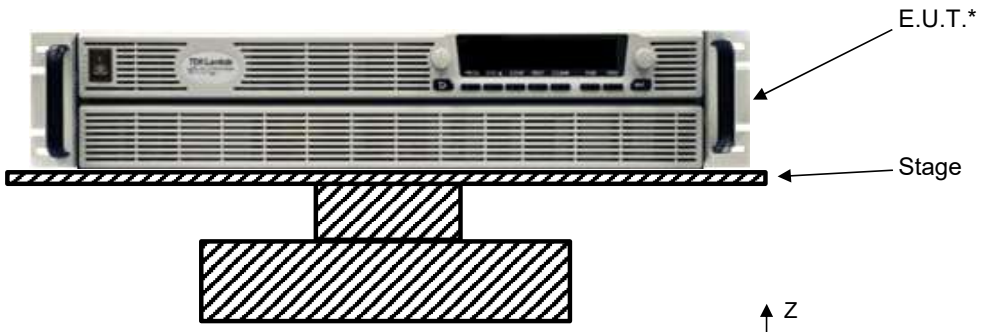
(1) Vibration test class

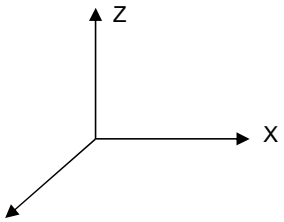
Frequency variable endurance test

(2) Equipment used

Name	Manufaturer	Model
Vibration Test System (Amplifier #SP6893-011/1, Remote Control Panel #SP6963-008/1, Vibrator #SP6893- 005/1, Slip Table, Driver Bar, Pomp, Fan, Head Expander)	Ling Dynamic Systems	V875
Temp. & Humidity Meter, (-50 - +70) deg, (20 - 99)% RH	Mad Electronics	HTC-1
APEX SL VIBRATION CONTROLLER	Unholtz-Dickie	Apex SL
Isotron Accelerometer 100 mV/g	Endevco	256-100

(3) Testing method





Test conditions:

Random frequency 10Hz~500Hz

Acceleration X: 0.24

Y: 0.89

Z: 1.25

Direction X,Y,Z

Test time 1H.each

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

(4)Test Result OK NG

Vin=480Vac; Iout=25A

Check item	Vout (V)	Ripple(mVp-p)	E.U.T.state
Directions \Initial			
Before test	600.022	255.4	O.K.
X	600.014	254.1	O.K.
Y	600.014	254.1	O.K.
Z	600.014	254.1	O.K.