



Test Report: XLG-150-M-DA2

150W Constant Power Mode with DALI-2 LED Driver

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

ENVIRONMENT TEST

■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CURRENT TOLERANCE	±5%	I/P:230VAC O/P:LEDmax CP: 1.4A & 2.1A Ta:25°C	CP1.4A: 1.400A/230VAC@CV MAX-1V 1.402A/230VAC@CV MIN 0.014% CP 2.1A: 2.107A/230VAC@CV MAX-1V 2.104A/230VAC@CV MIN 0.33%
2	FULL POWER CURRENT RANGE	1400~2100mA	I/P: 230VAC O/P:LEDmax CP: 1.4A & 2.1A Ta:25°C	107V/1.4A/230VAC 71V/2.1A/230VAC
3	OPEN CIRCUIT VOLTAGE (max)	120V	I/P: 230VAC O/P:NO LOAD CP: OPEN Ta:25°C	118.6V
4	CONSTANT CURRENT REGION	CP 1.4A: CH1:60V~ 107V CP 2.1A: CH1:60V~71V	I/P: 230VAC O/P:LEDmax CP: 1.4A & 2.1A Ta:25°C	CP 1.4A: 48.3V~ 107.3V/230VAC CP 2.1A: 36.8V~ 72.6V/230VAC
5	CURRENT ADJ. RANGE	CH1: 700mA~2100mA	I/P: 230VAC O/P:CVmin& CVmax-1V CP: 1.4A & 2.1A Ta:25°C	578mA~1454mA/230VAC@CV MAX-1V 578mA~2206mA/230VAC@CV MIN
6	CURRENT RIPPLE	4.0% max.	I/P: 230VAC O/P:LEDmax CP: 1.4A & 2.1A Ta:25°C	CP 1.4A: 0.71% CP 2.1A: 1.4%
7	AUXILIARY DC OUTPUT	12V@250mA tolerance ± 10%, ripple 200mVp-p (only for DA2-A-type)	I/P: 230VAC O/P:LEDmax CP: 1.4A & 2.1A Ta:25°C	PASS

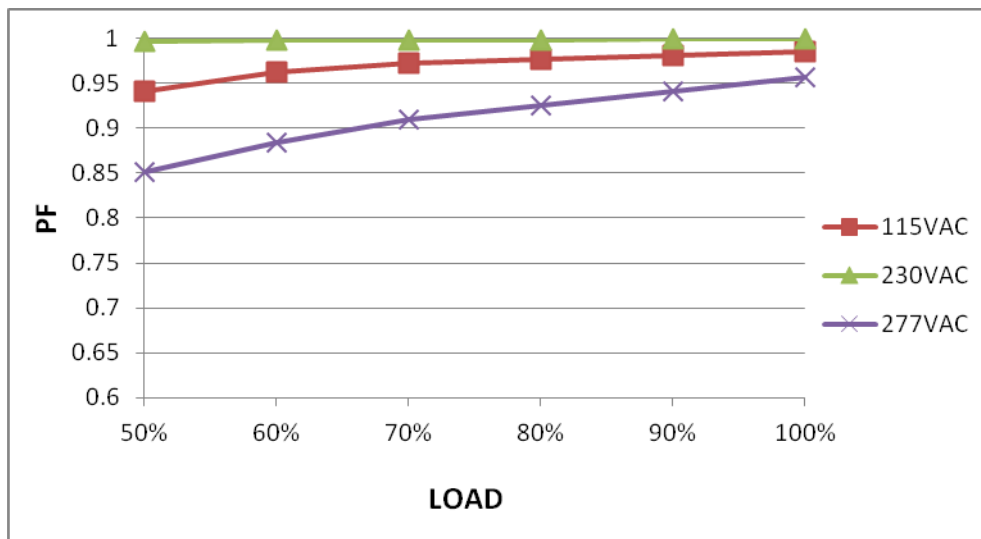
8	SET UP TIME	230VAC/ 500 ms (Max) 115VAC/ 1200 ms (Max)	I/P: 230VAC I/P: 115VAC O/P:LEDmax CP 1.4A Ta:25°C	230VAC/376ms 115VAC/608 ms
INPUT=230VAC/50HZ @ LEDMAX@ CP 1.4A CH1 : Output Voltage CH2 : AC Input Voltage		INPUT=230VAC/60HZ @ LEDMAX@ CP 1.4A CH1 : Output Voltage CH2 : AC Input Voltage		

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	100VAC~305VAC 142VDC ~ 431VDC	(1) I/P:TESTING O/P:LEDmax (2) I/P:DC TESTING(L:+ N:-) O/P:LEDmax (3) I/P:DC TESTING(L:- N:+) O/P:LEDmax (4) I/P: LOW-LINE=142VDC HIGH-LINE=431VDC O/P: Dimming on/off 【 for Dimming type,】 Ta:25°C	(1) 87Vac~308Vac (2) 139 Vdc~434Vdc (3) 139Vdc~434Vdc (4) OK
			I/P: LOW-LINE-3V=87 V HIGH-LINE+10V=308 V O/P: LEDmax / LEDmin CP 1.4A (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	(1).TEST:OK (2).TEST :OK

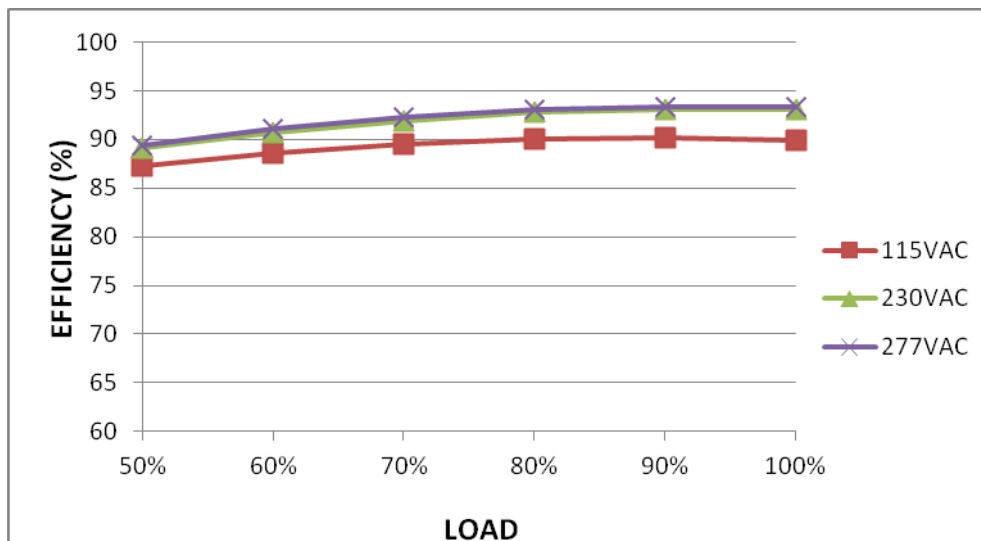
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P: 100VAC ~305VAC O/P: LEDmax ~ LEDmin CP 1.4A Ta:25°C	TEST:OK
3	INPUT CURRENT (TYP)	230VAC/ 1.0A 115VAC/ 1.8A 277VAC/0.8A	I/P: 230VAC/115VAC/277VAC O/P:LEDmax CP 1.4A Ta:25°C	I =0.701A/ 230VAC I =1.421A/115VAC I =0.594A/277VAC
4	POWER FACTOR(TYP)	0.92/277VAC LEDMAX 0.95/230VAC LEDMAX 0.97/115VAC LEDMAX	I/P: 277VAC/230VAC/115VAC O/P:LEDmax CP 1.4A Ta:25°C	PF=0.965 /277V/100%LOAD PF=0.988/230V/100%LOAD PF=0.999/115V/100%LOAD

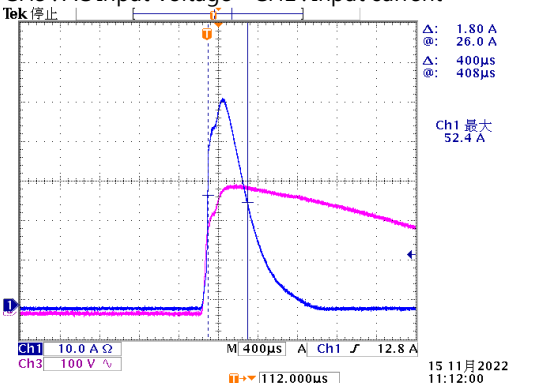
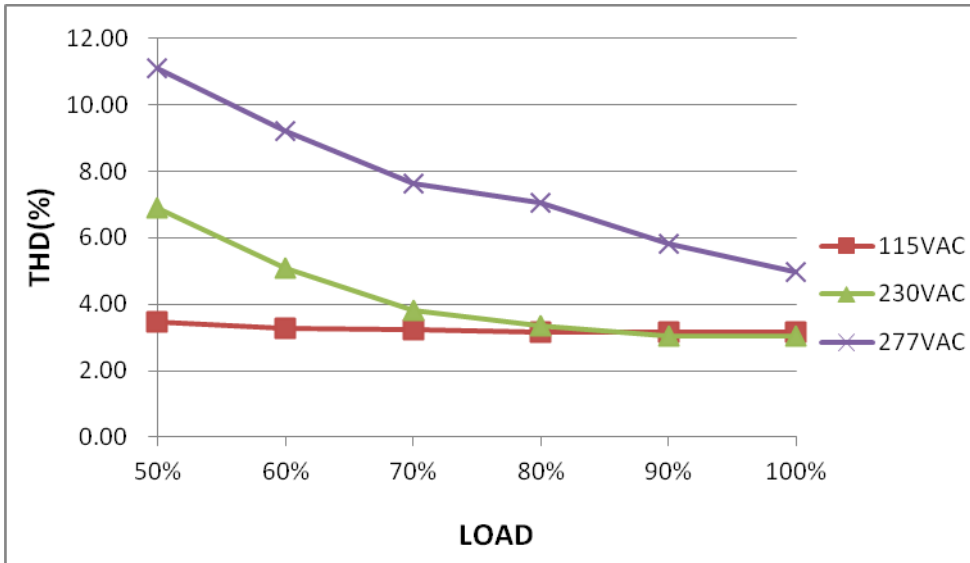
P.F vs LOAD



5	EFFICIENCY (TYP)	92.5%	I/P: 230VAC O/P:LEDmax CP 1.4A Ta:25°C	93.04%
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EFFICIENCY vs LOAD



6	INRUSH CURRENT (TYP)	230V/ 60A COLD START (twidh=500 usmeasured at 50% Ipeak) COLD START	I/P: 230VAC O/P:LEDmax CP 1.4A Ta:25°C	I =52.4A /230VAC T50= 400 μ S																												
<p>INPUT=230VAC/ 60HZ @ LEDMAX CH3 : AC Input Voltage CH1 : Input current</p> 																																
7	TOTAL HARMONIC DISTORTION	THD < 10% (@ load ≥ 50% at 115VAC/230VAC, @load ≥ 75% at 277VAC	I/P : 230VAC/115VAC/277VAC O/P : 50% LOAD 75%LOAD CP 1.4A Ta : 25°C	THD : 6.91%230V /50% THD : 3.47%115V /50% THD : 7.23%277V /75%																												
<p>THD vs LOAD</p>  <table border="1"> <caption>THD vs LOAD Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC THD (%)</th> <th>230VAC THD (%)</th> <th>277VAC THD (%)</th> </tr> </thead> <tbody> <tr> <td>50%</td> <td>~3.5</td> <td>~7.0</td> <td>~11.0</td> </tr> <tr> <td>60%</td> <td>~3.2</td> <td>~5.0</td> <td>~9.0</td> </tr> <tr> <td>70%</td> <td>~3.1</td> <td>~3.8</td> <td>~7.5</td> </tr> <tr> <td>80%</td> <td>~3.0</td> <td>~3.2</td> <td>~7.0</td> </tr> <tr> <td>90%</td> <td>~3.0</td> <td>~3.0</td> <td>~5.8</td> </tr> <tr> <td>100%</td> <td>~3.0</td> <td>~3.0</td> <td>~4.8</td> </tr> </tbody> </table>					LOAD (%)	115VAC THD (%)	230VAC THD (%)	277VAC THD (%)	50%	~3.5	~7.0	~11.0	60%	~3.2	~5.0	~9.0	70%	~3.1	~3.8	~7.5	80%	~3.0	~3.2	~7.0	90%	~3.0	~3.0	~5.8	100%	~3.0	~3.0	~4.8
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8	STANDBY POWER CONSUMPTION	Standby power consumption <0.5W (Dimming OFF, Only for standard DA2-type)	I/P : 230VAC O/P : NO LOAD Ta : 25°C	<0.4428W/230V																												
9	LEAKAGE CURRENT	EN61347-1 < 0.75mA / 277VAC	I/P: 277VAC O/P:Min LOAD Ta:25°C	L-FG:0.624 mA N-FG:0.251 mA																												

ROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P:305VAC I/P: 90 VAC O/P:LEDmax CP 1.4A Ta:25°C	O.T.P. Active PROTECTION TYPE: 1: Derating to 75% loading; stage 2: Derating to 50% loading. recovers automatically after fault condition is removed
2	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 305VAC I/P: 100 VAC O/P: LEDMAX CP: 1.4A &2.1A Ta:25°C	CP: 1.4A NO DAMAGE PROTECTION TYPE: Hiccup mode or constant current limiting, recovers automatically after fault condition is removed CP: 2.1A NO DAMAGE PROTECTION TYPE: Hiccup mode or constant current limiting, recovers automatically after fault condition is removed
3	INPUT OVER VOLTAGE (for XLG-150I only)	320 ~ 390VAC (Shut down output voltage when the input voltage exceeds protection voltage, recovers automatically after fault condition is removed) Can survive input voltage stress of 440Vac for 48 hours	I/P: TESTING O/P: LEDMAX	pass

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q5 Rated: 11A /600V	I/P:High-Line +3V =308V AC ON/OFF CP: 1.4A&2.1A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short I/P:Low-Line -3V = 97V VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short Ta:25°C	308V CP: 1.4A Q6 VDS: (1) 466V (2) 434V (3) 458V (4) 434V (5) 502V CP: 2.1A VDS: (1) 462V (2) 430V (3) 462V (4) 434V (5) 502V 97V CP: 1.4A Q6 VDS: (1) 478V (2) 438V (3) 474V (4) 438V (5) 510V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated: 10.6A/650V	I/P:High-Line +3V =308v AC ON/OFF CP: 1.4A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short I/P:Low-Line -3V = 97V VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short Ta:25°C	308V CP: 1.4A Q1 VDS: (1) 499V (2) 470V (3) 479V (4) 470V (5) 462V 97V CP: 2.1A Q1 VDS: (1) 563V (2) 531V (3) 563V (4) 515V (5) 515V

3	P.F.C DIODE	<p>D5 Rated: 9A/600V</p>	<p>I/P:High-Line +3V =308v AC ON/OFF CP: 1.4A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short</p> <p>I/P:Low-Line -3V = 97V O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short</p> <p>Ta:25°C</p>	<p>(1)502 V (2) 466V (3) 470V (4)462V (5)466V</p> <p>(1) 450V (2) 438V (3)454 V (4)438V (5)454V</p>
4	Diode Peak Voltage	<p>Q100 Rated: 10A/400V</p>	<p>I/P:High-Line +3V =308v AC ON/OFF CP: 1.4A&2.1A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) Output Short</p> <p>Ta:25°C</p>	<p>CP: 1.4A Q100 VDS: (1) 229V (2) 229V (3) 38V CP: 2.1A Q100 VDS: (1) 158V (2) 135V (3) 45V</p>
5	Input Capacitor Voltage	<p>C5 Rated: 82μ /450 V Surge voltage: 540V</p>	<p>I/P:High-Line +3V =308v AC ON/OFF CP: 1.4A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue</p> <p>Ta:25°C</p>	<p>(1) 458V (2) 438V (3) 450V (4) 434V</p>
6	Control IC Voltage Test	<p>PFC IC U1 Rated 9.75V~27V(MIN.)</p> <p>PWM IC U2 Rated 13V~26 V(MIN.)</p> <p>O/P IC U107 Rated 3V~30V</p>	<p>I/P:High-Line +3V =308v AC ON/OFF CP: 1.4A VDS: O/P: (1)LEDmax (2) LEDmin (3) Output Short (4) NO LOAD VRmin.LOW LINE (5)DIM OFF</p> <p>Ta:25°C</p>	<p>U1&U2 (1) 14.8V (2) 14.8V (3) 15V (4) 14.8V (5) 0.9V</p>

				U107 (1) 10.43V (2) 10.35V (3) 10.27V (4) 10.35V (5) 10.35V
7	TOP SWITCHING STAND BY POWER	U300 Rated 1.5A/ 750V	AC ON/OFF CP: 1.4A I/P:High-Line +3V =308V O/P: (1)LEDmax (2) LEDmin I/P:Low-Line -3V =97 V O/P: (1)LEDmax (2)LEDmin Ta:25°C	CP: 1.4A (1) 546V (2) 542V (1) 522V (2) 5230V
8	VCC Diode Peak Voltage	D304 Rated: 2 A/400V D450 Rated: 2 A/400V D470 Rated: 2 A/400V	I/P:High-Line +3V =308v AC ON/OFF CP: 0.7A VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue	D304 (1) 0.916A (2) 0.354A (3) 0.651A (4) 0.362A D405 (1) 1.433A (2) 0.702A (3) 0.758A (4) 0.702A D470 (1) 0.732A (2) 0.089A (3) 0.955A (4) 0.541A

SAFETY & EMC TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	EN61347-1 I/P-O/P: 3.75KVAC/min I/P-FG: 2 KVAC/min O/P-FG:1.5KVAC/min	I/P-O/P: 4.125 KVAC/min I/P-FG: 2.4KVAC/min O/P-FG: 1.8 KVAC/min Ta:25°C	I/P-O/P: mA I/P-FG: mA O/P-FG: mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: 9999MΩ I/P-FG: 9999MΩ O/P-FG: 9999M Ω NO DAMAGE
3	GROUNDING CONTINUITY	EN61347-1 FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	13mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS C	I/P: 230VAC/50HZ O/P: LEDmax Ta:25°C	PASS
2	CONDUCTION	FCC PART 15	I/P:230VAC (50HZ) O/P: LEDmax /50% LOAD Ta:25°C	PASS Test by certified Lab
3	RADIATION	FCC PART 15	I/P: 230VAC (50HZ) O/P:LEDmax Ta:25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR : 8KV / Contact : 4KV	I/P: 230VAC (50HZ) O/P:LEDmax Ta:25°C	CRITERIA A
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT:2KV	I/P: 230VAC (50HZ) O/P:LEDmax Ta:25°C	CRITERIA A
6	SURGE	IEC61000-4-5 light industry L-N :4KV L,N-PE:6KV	I/P: 230VAC (50HZ) O/P:LEDmax Ta:25°C	CRITERIA B
7	Test by certified Lab & Test Report Prepare Any contradictions of the test results, please refer to the latest EMC test report			

■ **RELIABILITY TEST**

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																																								
1	TEMPERATURE RISE TEST	MODEL : XLG-150-M-DA2-A 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 26.2°C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=54.9°C																																																																										
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11	J102	70.9°C	99.3°C																																																																									
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 305VAC/100VAC O/P : FULL LOAD Ta= -45°C/-35°C	TEST : OK																																																																								
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 55 °C NO DAMAGE	I/P : 315VAC O/P : FULL LOAD Ta=55 °C HUMIDITY= 95% R.H	TEST : OK																																																																								
4	TEMPERATURE COEFFICIENT	±0.03%/°C (0~60°C)	I/P : 230 VAC O/P : FULL LOAD	±0.0059%/°C (0~60°C)																																																																								
5	STORAGE TEMPERATURE TEST	-40~+80°C	1. Thermal shock Temperature : -45°C~ +90°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10CYCLE 5. Input/Output condition : AC OFF STATIC TEST : OK																																																																									

6	THERMAL SHOCK TEST	-40~+55°C	1. Thermal shock Temperature : -45°C~ +60°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 16CYCLE 5. Input/Output condition : 15cycle:230VAC/ FULL LOAD AC on 3 sec/AC off 1 sec TEST 1cycle:230VAC/ FULL LOAD Burn In Test TEST : OK
7	VIBRATION TEST	10~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 10min/sweep cycle (4) Acceleration : 6G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C TEST : OK
8	CAPACITOR LIFE CYCLE	XLG-150-M-DA2-A : SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Tc= 75 °C LIFE TIME (2) I/P : 230VAC O/P : 75% LOAD Tc= 75 °C LIFE TIME (3) I/P : 230VAC O/P : 50% LOAD Tc= 75 °C LIFE TIME	(1) 43922 HRS (2) 62001 HRS (3) 65643 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 2316.2K hrs min. Telcordia SR-332 (Bellcore) ; 213.3K hrs min. MIL-HDBK-217F (25°C)	
10	Ongoing Reliability Test	I/P : 230VAC O/P : FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 50,000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	WUWQ/HUANGMK	WENF	LINKX