Test Report: XLG-50-H-DA2

50W 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

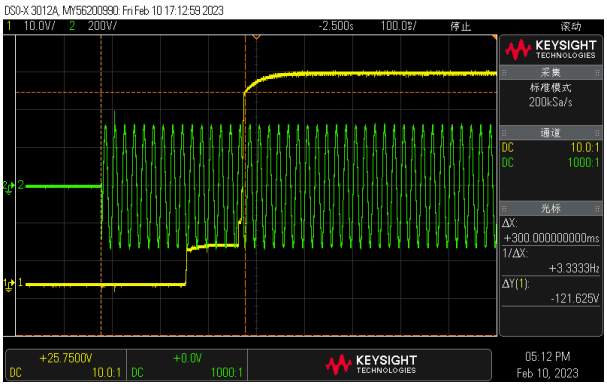
■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

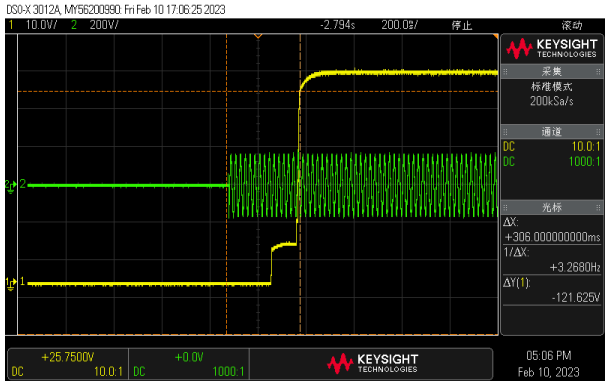
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CURRENT TOLERANCE	±5%	I/P:230VAC O/P:LEDmax CP: 0.9A & 1.4A Ta:25℃	CP0.9A: 0.906 A/230VAC@CV MAX-1V 0.906A/230VAC@CV MIN 0.67% CP 1.4A: 1.400A/230VAC@CV MAX-1V 1.399A/230VAC@CV MIN 0.07%
2	FULL POWER CURRENT RANGE	900~1400mA	I/P: 230VAC O/P:LEDmax CP: 0.9A & 1.4A Ta:25℃	56V/0.9A/230VAC 36V/1.4A/230VAC
3	OPEN CIRCUIT VOLTAGE (max)	60V	I/P: 230VAC O/P:NO LOAD CP: OPEN Ta:25℃	57.79V
4	CONSTANT CURRENT REGION	CP 0.9A: CH1:27V~ 56V CP 1.4A: CH1:27V~ 36V	I/P: 230VAC O/P:LEDmax CP: 0.9A & 1.4A Ta:25℃	CP 0.9A: 27V~ 56V/230VAC CP 1.4A: 27V~ 36V/230VAC
5	CURRENT ADJ. RANGE	CH1: 500mA~1400mA	I/P: 230VAC O/P:CVmin& CVmax-1V CP: 0.9A & 1.4A Ta:25℃	280mA~1190mA/230VAC@CV MAX-1V 281mA~1610mA/230VAC@CV MIN
6	CURRENT RIPPLE	5.0% (@ full load)	I/P: 230VAC O/P:LEDmax CP: 0.9A & 1.4A Ta:25℃	CP 0.9A: 2.7% CP 1.4A: 1.6%

7	SET UP TIME	230VAC/ 500 ms (Max) 115VAC/ 1200 ms (Max)	I/P: 230VAC I/P: 115VAC O/P:LEDmax CP 0.9A Ta:25℃	230VAC/300ms 115VAC/306ms

INPUT=230VAC/50HZ @ LEDMAX@ CP 0.9A
CH1 : Output Voltage CH2 : AC Input Voltage



INPUT=115VAC/60HZ @ LEDMAX@ CP 0.9A
CH1 : Output Voltage CH2 : AC Input Voltage

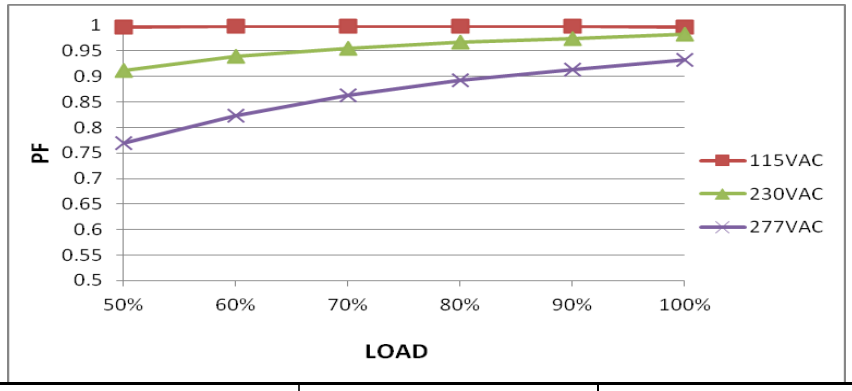


INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~305VAC 127VDC ~ 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=127VDC HIGH-LINE=431VDC O/P: Dimming on/off 【for Dimming type,】 Ta:25℃	(1) 87 Vac~305Vac (2) 127Vdc~432Vdc (3) 127Vdc~432Vdc (4) OK
			I/P: LOW-LINE-3V=87 V HIGH-LINE+10V=308 V O/P: LEDmax / LEDmin CP 0.9A (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 0.9A Ta:25℃	TEST:OK

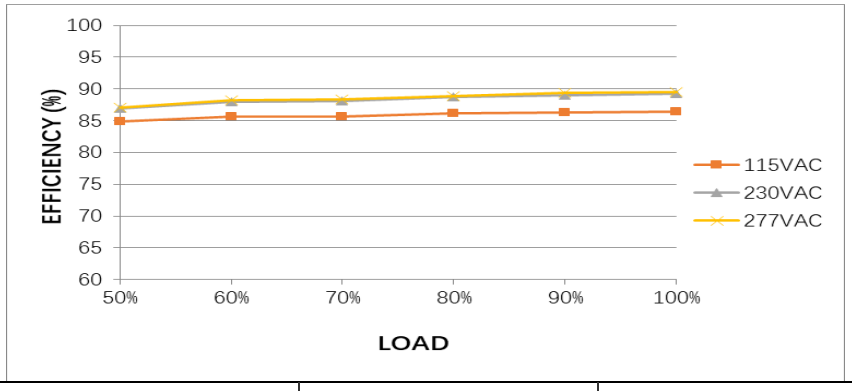
3	INPUT CURRENT (TYP)	230VAC/ 0.29A 115VAC/ 0.57A 277VAC/0.24A	I/P: 230VAC/115VAC/277VAC O/P:LEDmax CP 0.9A Ta:25℃	I =0.253A/ 230VAC I =0.509A/115VAC I =0.222A/277VAC
4	POWER FACTOR(TYP)	0.92/277VAC LEDMAX 0.95/230VAC LEDMAX 0.97/115VAC LEDMAX	I/P: 277VAC/230VAC/115VAC O/P:LEDmax CP 0.9A Ta:25℃	PF=0.932 /277V/100%LOAD PF=0.983/230V/100%LOAD PF=0.997/115V/100%LOAD

P.F vs LOAD



5	EFFICIENCY (TYP)	89%	I/P: 230VAC O/P:LEDmax CP 0.9A Ta:25℃	89.23%

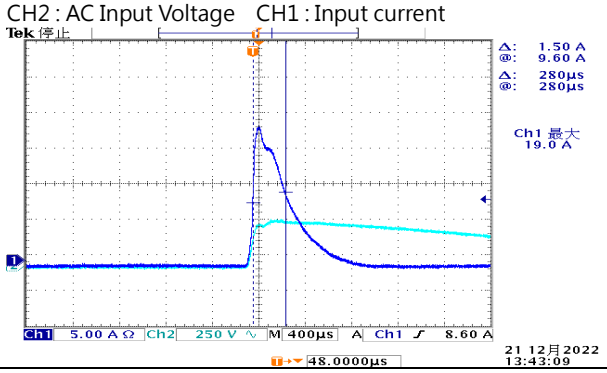
EFFICIENCY vs LOAD

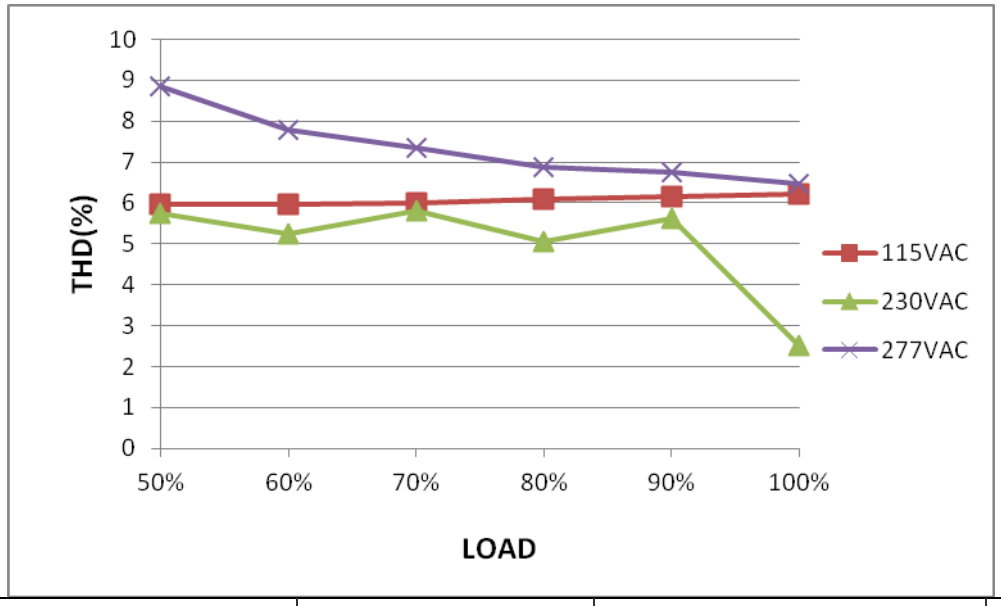


6	INRUSH CURRENT (TYP)	230V/ 50A COLD START (twidth=350 usmeasured at 50% Ipeak) COLD START	I/P: 230VAC O/P:LEDmax CP 0.9A Ta:25℃	I =19A /230VAC T50=280μ S

INPUT=230VAC/ 60HZ @ LEDMAX

CH2 : AC Input Voltage CH1 : Input current



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 0.9A Ta：25℃	THD：5.76%230V /50% THD：5.98%115V /50% THD：7.12%277V /75%
	THD vs LOAD 			
8	STANDBY POWER CONSUMPTION	Standby power consumption <0.5W (Dimming off)(For standard version)	I/P：230VAC O/P：NO LOAD Ta：25℃	<0.3756W/230VAC
9	LEAKAGE CURRENT	EN61347-1 < 0.75mA / 277VAC	I/P: 277 VAC O/P:Min LOAD Ta:25℃	L-FG: 0.6115mA N-FG: 0.6103mA

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 0.9A Ta:25℃	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: 0.9A &1.4A Ta:25℃	CP: 0.9A NO DAMAGE PROTECTION TYPE： Hiccup mode or constant current limiting, recovers automatically after fault condition is removed CP: 1.4A NO DAMAGE

				PROTECTION TYPE : Hiccup mode or constant current limiting, recovers automatically after fault condition is removed
3	INPUT OVER VOLTAGE (for XLG-50I only)	320 ~ 370VAC (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**	Q2 Rated: 6A /800V	I/P:High-Line +3V =308V AC ON/OFF **CP: 0.9A&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℃	308V **CP: 0.9A** Q2 VDS: (1) 752V (2) 752V (3) 648V (4) 640V (5) 575V **CP: 1.4A** **VDS:** (1) 717V (2) 709V (3) 677V (4) 685V (5) 596V 87V **CP: 0.9A** Q2 VDS: (1) 720V (2) 720V (3) 624V (4) 600V (5) 575V

2	P.F.C Transistor (D to S) or (C to E) **Peak Voltage**	Q1 Rated: 6 A/700V	I/P:High-Line +3V =308v AC ON/OFF **CP: 0.9A&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℃	**308V** **CP: 0.9A** Q1 VDS: (1) 519V (2) 523V (3) 519V (4) 527V (5) 495V **87V** **CP: 1.4A** Q1 VDS: (1) 502V (2) 502V (3) 506V (4) 514V (5) 446V
3	P.F.C DIODE	D4 Rated: 3A/600V	I/P:High-Line +3V =308v AC ON/OFF **CP: 0.9A** VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short I/P:Low-Line -3V = 107V O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short Ta:25℃	 (1) 436V (2) 440V (3) 440V (4)440V (5)436V (1) 444V (2) 448V (3) 448V (4)448V (5)428V
4	Diode Peak **Volt/age**	D100 Rated: 3A/300V	I/P:High-Line +3V =308v AC ON/OFF **CP: 0.9A&1.4A** VDS: O/P: (1)LEDmax (2) LEDmax continue (3) Output Short	 **CP: 0.9A** D100 VDS: (1) 181V (2) 181V (3) 115V **CP: 1.4A**

			Ta:25℃	D100 VDS: (1) 154V (2) 154V (3) 114V
5	**Input Capacitor Voltage**	C5 Rated: 220μ /450 V Surge voltage: 650 V	I/P:High-Line +3V =308v AC ON/OFF **CP: 0.9A** VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue Ta:25℃	 (1) 470V (2) 434V (3) 478V (4) 434V
6	**Control IC Voltage Test**	PFC IC U1 Rated 10.5V~27V(MIN.) PWM IC U2 Rated 9.4V~ 35V(MIN.) O/P IC U100 Rated -0.3V~40V	I/P:High-Line +3V =308v AC ON/OFF **CP: 0.9A** VDS: O/P: (1)LEDmax (2) LEDmin (3) Output Short (4) NO LOAD VRmin.LOW LINE (5)DIM OFF Ta:25℃	 **U1/U2** (1) 11.89V (2) 11.93V (3) 11.93V (4) 11.85V (5) 11.85V U100 (1) 11.21V (2) 11.29V (3) 11.29V (4) 11.13V (5) 11.13V

■ 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℃	I/P-O/P: 3.697mA I/P-FG: 3.661mA O/P-FG: 3.624mA 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℃	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℃	10mΩ

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℃	PASS
2	CONDUCTION	FCC PART 15	I/P:230VAC (50HZ) O/P: LEDmax /50% LOAD Ta:25℃	PASS Test by certified Lab
3	RADIATION	FCC PART 15	I/P: 230VAC (50HZ) O/P:LEDmax Ta:25℃	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℃	CRITERIA A
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT: 2KV	I/P: 230VAC (50HZ) O/P:LEDmax Ta:25℃	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℃	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

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST CONDITION</th><th>RESULT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL： XLG-50-H-DA2
1. ROOM AMBIENT BURN-IN：2 HRS
I/P： 230VAC O/P： FULL LOAD Ta= 25.7℃
2. HIGH AMBIENT BURN-IN： 2 HRS
I/P： 230VAC O/P： FULL LOAD Ta=60.7℃</td></tr>
<tr><td colspan="5">
<table>
<tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 25.7 ℃</th><th>HIGH AMBIENT Ta=60.7 ℃</th></tr>
<tr><td>1</td><td>RT1</td><td>55.7℃</td><td>85.3℃</td></tr>
<tr><td>2</td><td>R5</td><td>57.1℃</td><td>88.7℃</td></tr>
<tr><td>3</td><td>U481</td><td>55.7℃</td><td>87.3℃</td></tr>
<tr><td>4</td><td>D4</td><td>60.0℃</td><td>92.0℃</td></tr>
<tr><td>5</td><td>U482</td><td>55.0℃</td><td>86.6℃</td></tr>
<tr><td>6</td><td>C5</td><td>58.2℃</td><td>89.2℃</td></tr>
<tr><td>7</td><td>D52</td><td>61.3℃</td><td>92.7℃</td></tr>
<tr><td>8</td><td>L2</td><td>51.3℃</td><td>83.0℃</td></tr>
<tr><td>9</td><td>T1 Core</td><td>61.8℃</td><td>93.2℃</td></tr>
<tr><td>10</td><td>T1 Wire</td><td>61.5℃</td><td>92.5℃</td></tr>
<tr><td>11</td><td>BD1</td><td>56.2℃</td><td>87.7℃</td></tr>
<tr><td>12</td><td>Q1</td><td>56.1℃</td><td>88.1℃</td></tr>
<tr><td>13</td><td>Q2</td><td>65.0℃</td><td>98.2℃</td></tr>
<tr><td>14</td><td>D6</td><td>62.6℃</td><td>96.1℃</td></tr>
<tr><td>15</td><td>U1</td><td>53.4℃</td><td>85.3℃</td></tr>
<tr><td>16</td><td>U100</td><td>55.4℃</td><td>87.1℃</td></tr>
<tr><td>17</td><td>D101</td><td>69.2℃</td><td>99.6℃</td></tr>
<tr><td>18</td><td>C100</td><td>63.1℃</td><td>93.8℃</td></tr>
<tr><td>19</td><td>D100</td><td>71.7℃</td><td>102.2℃</td></tr>
<tr><td>20</td><td>C51</td><td>58.1℃</td><td>89.3℃</td></tr>
<tr><td>21</td><td>Q300</td><td>65.7℃</td><td>96.6℃</td></tr>
<tr><td>22</td><td>C300</td><td>60.2℃</td><td>91.2℃</td></tr>
<tr><td>23</td><td>C101</td><td>57.3℃</td><td>88.3℃</td></tr>
<tr><td>24</td><td>TC</td><td>48.7℃</td><td>79.8℃</td></tr>
</table>
</td></tr>
<tr><td>2</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P： 305VAC/100VAC
O/P：FULL LOAD
Ta= -45℃/-35℃</td><td>TEST：OK</td></tr>
<tr><td>3</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 60 ℃
NO DAMAGE</td><td>I/P： 315VAC
O/P：FULL LOAD
Ta=60 ℃
HUMIDITY= 95% R.H</td><td>TEST：OK</td></tr>
<tr><td>4</td><td>TEMPERATURE
COEFFICIENT</td><td>±0.03%/℃(0~60℃)</td><td>I/P： 230 VAC
O/P：FULL LOAD</td><td>±0.004%/℃(0~60℃)</td></tr>
<tr><td>5</td><td>STORAGE TEMPERATURE TEST</td><td>-40 ~ +80℃</td><td colspan="2">1. Thermal shock Temperature： -45 ~ +90℃
2. Temperature change rate ：25℃ / 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</td></tr>
</table>

6	THERMAL SHOCK TEST	-40~+60℃	1. Thermal shock Temperature： -45 ~ +65℃ 2. Temperature change rate ：25℃ / 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：12min/sweep cycle (4) Acceleration：6G (5) Test Time：180min in each axis (X.Y.Z) (6) Ta：25℃ TEST：OK
8	CAPACITOR LIFE CYCLE	XLG-50-HDA2：SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P： 230VAC O/P：FULL LOAD Tc= 75 ℃ LIFE TIME (2) I/P： 230VAC O/P：75% LOAD Tc= 75 ℃ LIFE TIME (3) I/P： 230VAC O/P：50% LOAD Tc= 75 ℃ LIFE TIME	(1) 148262 HRS (2) 240453 HRS (3) 408348 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 2352.4K hrs min. Telcordia SR-332 (Bellcore) ; 207.3K hrs min. MIL-HDBK-217F (25℃)	
10	Ongoing Reliability Test	I/P：230VAC O/P：FULL LOAD TA=50℃ Demonstration Mean Time Between Failure : 50,000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	WUWQ/HUANGMK	WENF	LINKX