



Test Report: XLG-240-M-DA2

240W 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	CP 1.4A: 1.401A/230VAC@CV MAX-1V 1.403A/230VAC@CV MIN 0.22% CP 2.1A: 2.105A/230VAC@CV MAX-1V 2.105A/230VAC@CV MIN 0.24%
2	FULL POWER CURRENT RANGE	1400~2100mA	I/P: 230VAC O/P:LEDmax CP: 1.4A& 2.1A Ta:25°C	171V/1.4A/230VAC 114V/2.1A/230VAC
3	OPEN CIRCUIT VOLTAGE (max)	197V	I/P: 230VAC O/P:NO LOAD CP: OPEN Ta:25°C	178.03V
4	CONSTANT CURRENT REGION	CP 1.4A: CH1:90V~ 171V CP 2.1A: CH1:90V~ 114V	I/P: 230VAC O/P:LEDmax CP: 1.4A& 2.1A Ta:25°C	CP 1.4A: 71.91V~178.01V/230VAC CP 2.1A: 71.91V~ 118.04V/230VAC
5	CURRENT ADJ. RANGE	CH1:1400mA~2100mA	I/P: 230VAC O/P:CVmin& CVmax-1V CP: 1.4A& 2.1A Ta:25°C	572mA~1631mA/230VAC@CV MAX-1V 572mA~2276mA/230VAC@CV MIN
6	CURRENT RIPPLE	5.0% max.	I/P: 230VAC O/P:LEDmax CP: 1.4A& 2.1A Ta:25°C	CP 1.4A: 0.9% CP 2.1A: 1.2%
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

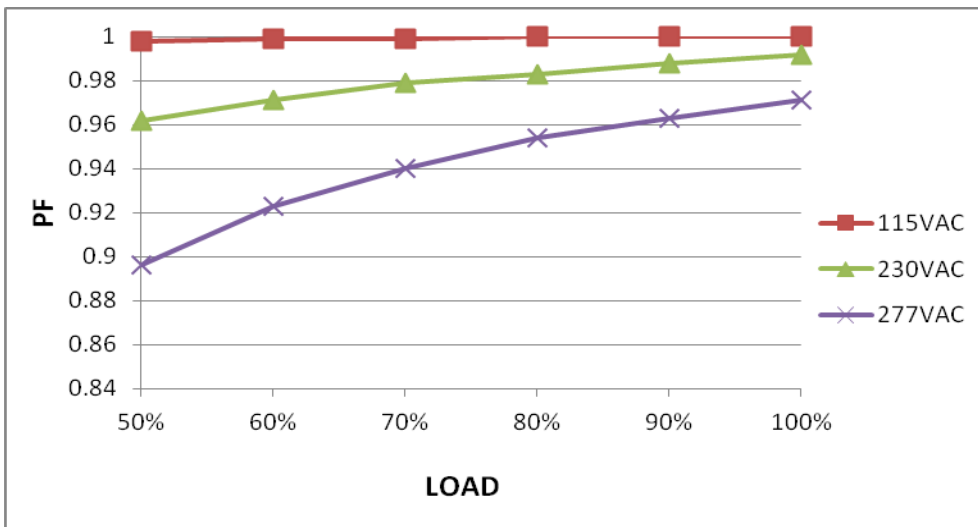
8	SET UP TIME	230VAC/ 500 ms (Max) 115VAC/ 1200 ms (Max)	I/P: 230VAC I/P: 115VAC O/P:LEDmax CP 1.4A Ta:25°C	230VAC/334ms 115VAC/598ms
INPUT=230VAC/50HZ @ LEDMAX@ CP 1.4A CH1 : Output Voltage CH2 : AC Input Voltage		INPUT=230VAC/60HZ @ LEDMAX@ CP 1.4A CH1 : Output Voltage CH2 : AC Input Voltage		

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,】 (PLEASE CHECK DERATING CURVE) Ta:25°C	(1) 100 Vac~305Vac (2) 142Vdc~431Vdc (3) 142Vdc~431Vdc (4) OK
			I/P: LOW-LINE-3V=107V 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

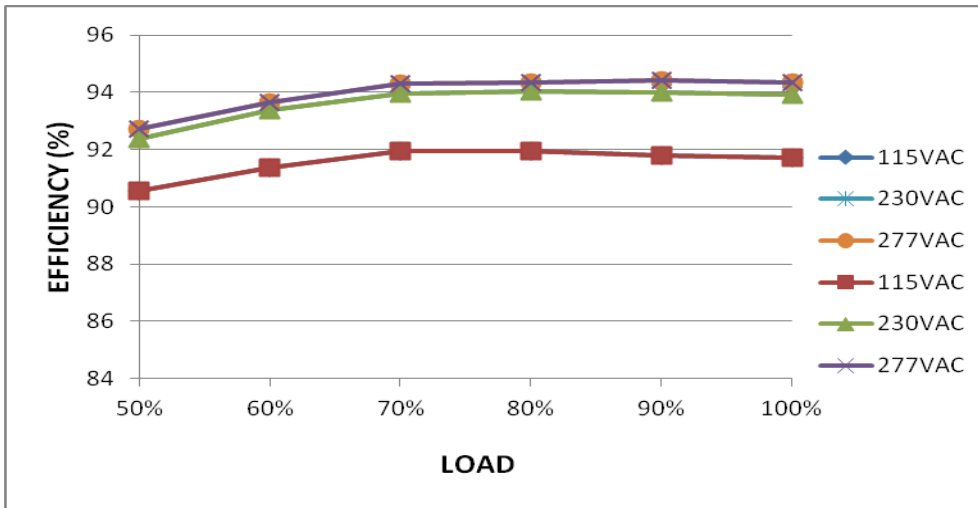
3	INPUT CURRENT (TYP)	230VAC/ 1.3A 115VAC/ 2.7A 277VAC/1.1A	I/P: 230VAC/115VAC/277VAC O/P:LEDmax CP 1.4A Ta:25°C	I =1.117A/ 230VAC I =2.264A/115VAC I =0.947A/277VAC
4	POWER FACTOR(TYP)	0.92/277VAC LEDMAX 0.95/230VAC LEDMAX 0.97/115VAC LEDMAX	I/P: 277VAC/230VAC/115VAC O/P:LEDmax CP 1.4A Ta:25°C	PF=0.971 /277V/100%LOAD PF=0.992/230V/100%LOAD PF=0.999/115V/100%LOAD

P.F vs LOAD



5	EFFICIENCY (TYP)	93.5%	I/P: 230VAC O/P:LEDmax CP 1.4A Ta:25°C	93.93%
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EFFICIENCY vs LOAD



6	INRUSH CURRENT (TYP)	230V/ 85A COLD START (twidth=500 usmeasured at 50% Ipeak) COLD START	I/P: 230VAC O/P:LEDmax CP 1.4A Ta:25°C	I =73A /230VAC T50= 408us
<p>INPUT=230VAC/ 60HZ @ LEDMAX CH2 : 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 : 6.85%230V /50% THD : 3.12%115V /50% THD : 7.27%277V /75%
<p>THD vs LOAD</p>				
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	0.432W
9	LEAKAGE CURRENT	EN61347-1 < 0.75mA / 277VAC	I/P: 277 VAC O/P:Min LOAD Ta:25°C	L-FG: 0.371mA N-FG: 0.388mA

PROTECTION 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-240I 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	Q3 Rated: 13A/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 = 107V VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short Ta:25°C	308V CP: 1.4A Q3 VDS: (1) 493V (2) 449V (3) 485V (4) 441V (5) 493V CP: 2.1A VDS: (1) 481V (2) 449V (3) 481V (4) 453V (5) 493V 107V CP: 1.4A Q3 VDS: (1) 477V (2) 453V (3) 469V (4) 445V (5) 497V CP: 2.1A Q3 VDS: (1) 485V (2) 454V (3) 469V (4) 453V (5) 493V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated: 26 A/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	308V CP: 1.4A Q1 VDS: (1) 485V (2) 473V (3) 485V (4) 461V (5) 469V 107V CP: 2.1A

			<p>I/P:Low-Line -3V = 107V VDS: O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short Ta:25°C</p>	<p>Q1 VDS: (1) 553V (2) 537V (3) 553V (4) 525V (5) 549V</p>
3	P.F.C DIODE	<p>D5 Rated: 8A/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 I/P:Low-Line -3V = 107V O/P: (1)LEDmax (2) LEDmax continue (3) LEDmin (4) LEDmin continue (5) Output Short Ta:25°C</p>	<p>308VAC (1) 456V (2) 443V (3) 443V (4) 439V (5) 439V 107VAC (1) 460V (2) 447V (3) 456V (4) 443V (5)460V</p>
4	Diode Peak Voltage	<p>D100 Rated: 10A/300V</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 Ta:25°C</p>	<p>CP: 1.4A Q100 VDS: (1) 177V (2) 177V (3) 15.3V CP: 2.1A Q100 VDS: (1) 118.2V (2) 118.2V (3) 16.8V</p>
5	Input Capacitor Voltage	<p>C5 Rated: 120μ /450 V Surge voltage: 500 V</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 Ta:25°C</p>	<p>(1)460V (2)443V (3)443V (4)439V</p>

6	Control IC Voltage Test	<p>PFC IC U1 Rated 10.5V~27V(MIN.)</p> <p>PWM IC U2 Rated 16.3V~ 20V(MIN.)</p> <p>O/P IC U107 Rated 3V~32V</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) 14.1V (2) 14.1V (3) 14.1V (4) 14.1V (5) 1.30V</p> <p>U107 (1) 16.5V (2) 16.5V (3) 16.5V (4) 16.5V (5) 16.7V</p>															
7	TOP SWITCHING STAND BY POWER	<p>U300 Rated 1.5A/ 750 V</p>	<p>AC ON/OFF CP: 1.4A I/P:High-Line +3V =308V O/P: (1)LEDmax (2) LEDmin</p> <p>I/P:Low-Line -3V =97 V O/P: (1)LEDmax (2) LEDmin</p> <p>Ta:25°C</p>	<p>308VAC CP: 1.4A (1) 572V (2) 572V</p> <p>107VAC (1) 580V (2) 580V</p>															
8	VCC Diode Peak Voltage	<p>D450 Rated: 2A/400V</p> <p>D470 Rated: : 2A/400V</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>	<table border="0"> <tr> <td></td> <td>D450</td> <td>D470</td> </tr> <tr> <td></td> <td>(1)0.77A</td> <td>(1)1.90A</td> </tr> <tr> <td></td> <td>(2)0.40A</td> <td>(2)1.54A</td> </tr> <tr> <td></td> <td>(3)0.78A</td> <td>(3)1.90A</td> </tr> <tr> <td></td> <td>(4)0.39A</td> <td>(4)1.50A</td> </tr> </table>		D450	D470		(1)0.77A	(1)1.90A		(2)0.40A	(2)1.54A		(3)0.78A	(3)1.90A		(4)0.39A	(4)1.50A
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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:1.8KVAC/min	I/P-O/P: 4.125 KVAC/min I/P-FG: 2.4KVAC/min O/P-FG: 2.16 KVAC/min Ta:25°C	I/P-O/P: 2.27mA I/P-FG:1.999mA O/P-FG: 1.842mA 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:>9999 M Ω NO DAMAGE
3	GROUNDING CONTINUITY	EN61347-1 FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	8mΩ

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	EN55015	I/P:230VAC (50HZ) O/P: LEDmax /50% LOAD Ta:25°C	PASS Test by certified Lab
3	RADIATION	EN55015	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-240-M-DA2 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 25.8°C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=53.4°C																																																																																																		
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 30 °C</th> <th>HIGH AMBIENT Ta=53.5 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>BD1</td><td>64.0°C</td><td>85.6°C</td></tr> <tr><td>2</td><td>L2</td><td>64.8°C</td><td>85.7°C</td></tr> <tr><td>3</td><td>Q1</td><td>68.5°C</td><td>90.8°C</td></tr> <tr><td>4</td><td>D5</td><td>68.7°C</td><td>90.9°C</td></tr> <tr><td>5</td><td>R7</td><td>66.0°C</td><td>88.0°C</td></tr> <tr><td>6</td><td>C5</td><td>64.4°C</td><td>85.8°C</td></tr> <tr><td>7</td><td>U1</td><td>62.5°C</td><td>84.7°C</td></tr> <tr><td>8</td><td>U2</td><td>64.2°C</td><td>84.6°C</td></tr> <tr><td>9</td><td>Q2</td><td>66.6°C</td><td>88.5°C</td></tr> <tr><td>10</td><td>Q3</td><td>65.9°C</td><td>87.5°C</td></tr> <tr><td>11</td><td>C51</td><td>67.7°C</td><td>90.2°C</td></tr> <tr><td>12</td><td>T1</td><td>67.0°C</td><td>89.9°C</td></tr> <tr><td>13</td><td>C104</td><td>62.7°C</td><td>85.3°C</td></tr> <tr><td>14</td><td>C105</td><td>63.3°C</td><td>85.7°C</td></tr> <tr><td>15</td><td>U107</td><td>60.0°C</td><td>82.0°C</td></tr> <tr><td>16</td><td>D102</td><td>68.2°C</td><td>90.1°C</td></tr> <tr><td>17</td><td>J102</td><td>67.0°C</td><td>89.6°C</td></tr> <tr><td>18</td><td>RT22</td><td>58.2°C</td><td>80.1°C</td></tr> <tr><td>19</td><td>BD1</td><td>64.0°C</td><td>85.6°C</td></tr> <tr><td>20</td><td>U300</td><td>58.8°C</td><td>80.4°C</td></tr> <tr><td>21</td><td>T2</td><td>61.6°C</td><td>83.8°C</td></tr> <tr><td>22</td><td>C312</td><td>63.2°C</td><td>85.3°C</td></tr> <tr><td>23</td><td>TC</td><td>57.7°C</td><td>79.5°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 30 °C	HIGH AMBIENT Ta=53.5 °C	1	BD1	64.0°C	85.6°C	2	L2	64.8°C	85.7°C	3	Q1	68.5°C	90.8°C	4	D5	68.7°C	90.9°C	5	R7	66.0°C	88.0°C	6	C5	64.4°C	85.8°C	7	U1	62.5°C	84.7°C	8	U2	64.2°C	84.6°C	9	Q2	66.6°C	88.5°C	10	Q3	65.9°C	87.5°C	11	C51	67.7°C	90.2°C	12	T1	67.0°C	89.9°C	13	C104	62.7°C	85.3°C	14	C105	63.3°C	85.7°C	15	U107	60.0°C	82.0°C	16	D102	68.2°C	90.1°C	17	J102	67.0°C	89.6°C	18	RT22	58.2°C	80.1°C	19	BD1	64.0°C	85.6°C	20	U300	58.8°C	80.4°C	21	T2	61.6°C	83.8°C	22	C312	63.2°C	85.3°C	23	TC	57.7°C	79.5°C
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2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 305VAC/110VAC 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 50 °C NO DAMAGE	I/P : 315VAC O/P : FULL LOAD Ta=50 °C HUMIDITY= 95% R.H	TEST : OK																																																																																																
4	TEMPERATURE COEFFICIENT	±0.06%/°C (0~60°C)	I/P : 230 VAC O/P : FULL LOAD	±0.0022%/°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~+50°C	1. Thermal shock Temperature : -45°C~+55°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 : 12min/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-240-M-DA2 : 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) 61261 HRS (2) 76882 HRS (3) 92250 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 1988.7K hrs min. Telcordia SR-332 (Bellcore) ; 170.5K 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