Test Report： XLG-150-24

150W Constant Voltage+Constant Current LED Driver

■ DESIGN VERIFY TEST

Output Function Test
Input Function Test
Protection Function Test
Component Stress Test

■ SAFETY & E.M.C. TEST

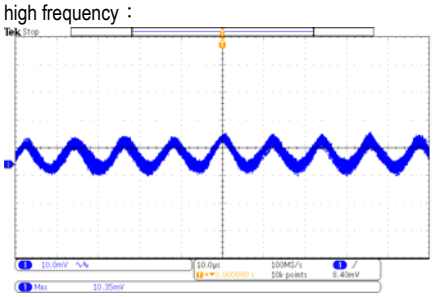
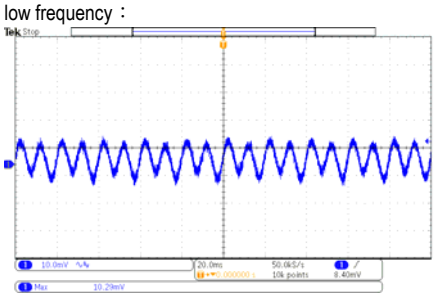
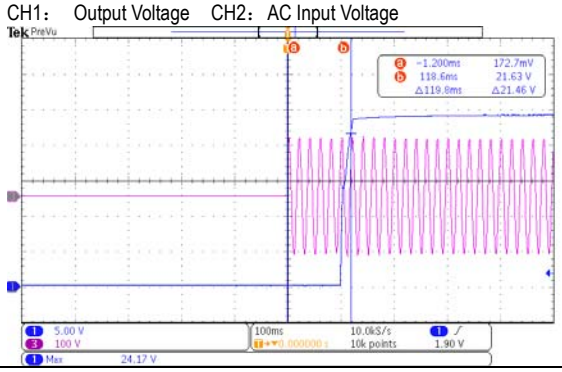
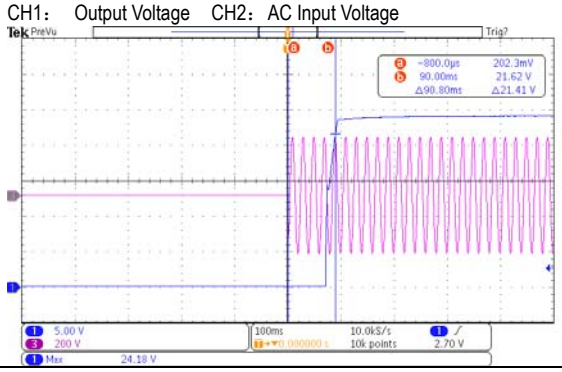
Safety Test
E.M.C. Test

■ RELIABILITY TEST

Environment Test

■ DESIGN VERIFY TEST

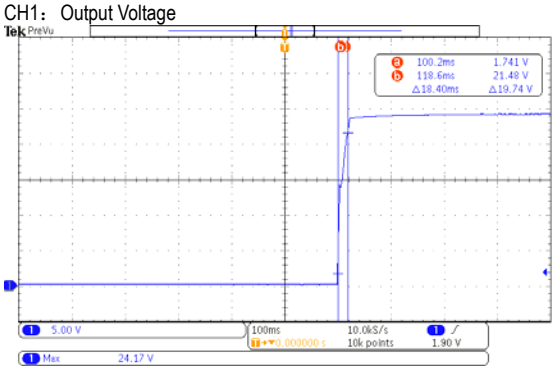
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	CONSTANT CURRENT REGION	16.8 V~ 24V	I/P： 230VAC O/P：LED MODE Ta：25℃	15V~ 24 V
2	CURRENT ADJ. RANGE	3.2A~6.25A	I/P： 230VAC O/P：SETTING Ta：25℃	2.76A~6.8A
3	VOLTAGE TOLERANCE	-2%~+2%	I/P： 90VAC / 305VAC O/P：FULL/ NO LOAD Ta：25℃	-0.13%~ 0.54%
4	LINE REGULATION	-0.5%~+0.5%	I/P： 90VAC ~ 305VAC O/P：FULL LOAD Ta：25℃	-0.08 %~0%
5	LOAD REGULATION	-1%~+1%	I/P： 230VAC O/P：FULL ~NO LOAD Ta：25℃	0.17 %~ 0.21%
6	OVER/UNDERSHOOT TEST	<±5 %	I/P： 230VAC O/P：FULL LOAD Ta：25℃	±1.4%
7	CONSTANT POWER	O/P：150W	I/P：230 VAC O/P：Vo×Io	TEST：OK
8	RIPPLE & NOISE (Max)	240mVp-p	I/P： 230VAC O/P：FULL LOAD Ta：25℃	10.35mVp-p
	high frequency： 		low frequency： 	
9	SET UP TIME(Max)	115VAC/1200ms 230VAC/ 500ms	I/P： 115 VAC I/P： 230 VAC O/P：FULL LOAD Ta：25℃	115VAC/ 119.8 ms 230VAC/ 90.8 ms
	INPUT=115VAC/50HZ @ FULL LOAD CH1： Output Voltage CH2：AC Input Voltage 		INPUT=230VAC/50HZ @ FULL LOAD CH1： Output Voltage CH2：AC Input Voltage 	

10	RISE TIME (Max)	115VAC/ 100ms 230VAC/ 100ms	I/P：115 VAC I/P：230 VAC O/P：FULL LOAD Ta：25℃	115VAC/ 18.4 ms 230VAC/ 18.4 ms

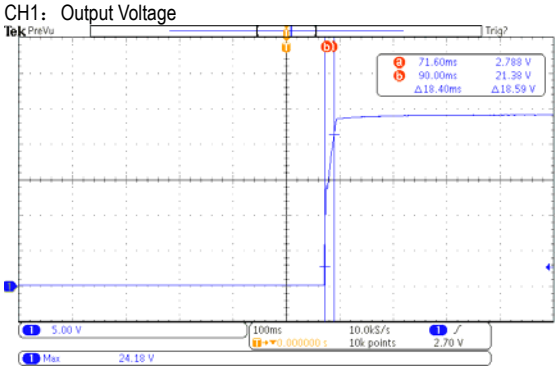
INPUT=115VAC/50HZ @ FULL LOAD

CH1：Output Voltage



INPUT=230VAC/50HZ @ FULL LOAD

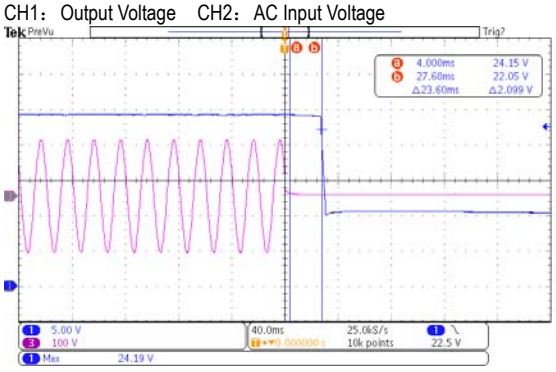
CH1：Output Voltage



11	HOLD UP TIME(Typ)	115VAC/ 10ms 230VAC/ 10ms	I/P： 115 VAC I/P： 230 VAC O/P：FULL LOAD Ta：25℃	115VAC/ 23.6 ms 230VAC/ 24.4 ms

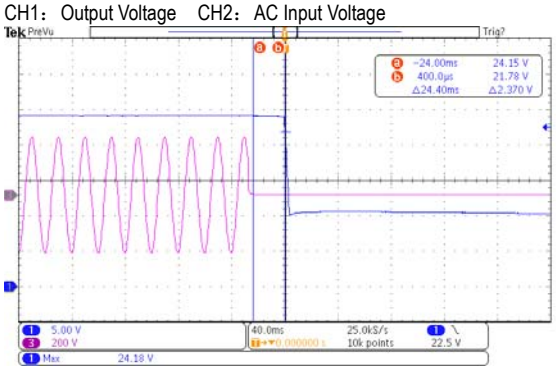
INPUT=115VAC/50HZ @ FULL LOAD

CH1：Output Voltage CH2：AC Input Voltage



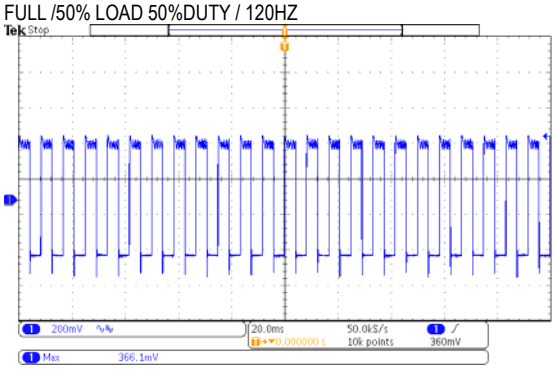
INPUT=230VAC/50HZ @ FULL LOAD

CH1：Output Voltage CH2：AC Input Voltage

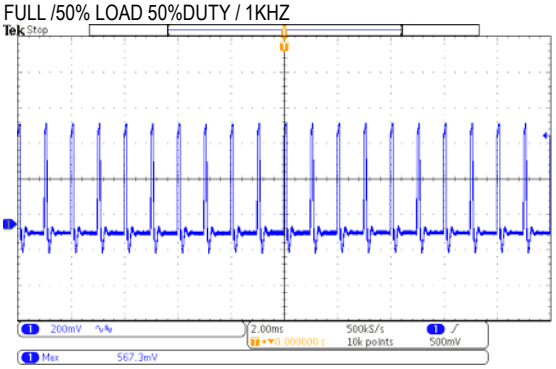


12	DYNAMIC LOAD	V1： 2400 mVp-p	I/P： 230VAC O/P： (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta：25℃	 (1) 366mVp-p (2) 567mVp-p

FULL /50% LOAD 50%DUTY / 120HZ



FULL /50% LOAD 50%DUTY / 1KHZ

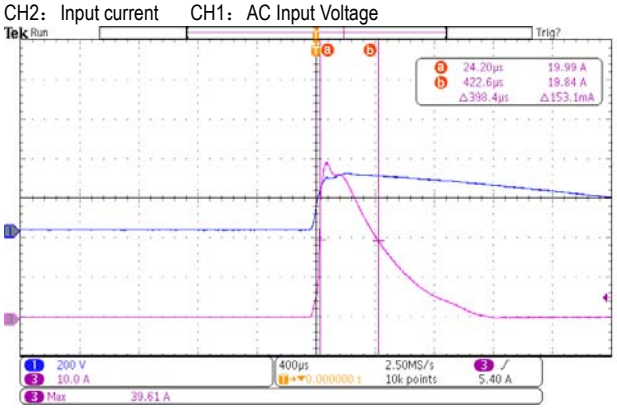


INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	100VAC~305VAC	I/P：TESTING O/P：FULL LOAD Ta：25℃	97 V~ 315 V
			I/P： (1)LOW-LINE-3V=97 V HIGH-LINE+10V=315 V O/P：FULL/MIN LOAD ON：30 Sec OFF：30 Sec 10MIN (2)230VAC ON：0.5 Sec OFF：0.5 Sec 20MIN (POWER ON/OFF NO DAMAGE)	TEST： OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P： 100 VAC ~305 VAC O/P：FULL~NO LOAD Ta：25℃	TEST： OK
3	AC CURRENT	0.8A/277VAC 1.0A/230VAC 1.8A/115VAC	I/P： 277 VAC I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	I =0.56 A/ 277VAC I =0.66 A/ 230VAC I =1.34 A/ 115VAC
4	LEAKAGE CURRENT	< 0.75mA / 277VAC	I/P： 277 VAC O/P：NO LOAD Ta：25℃	L-FG： 0.323 mA N-FG： 0.322 mA
5	NO LOAD CONSUMPTION	<0.5W	I/P：230VAC O/P：NO LOAD Ta：25℃	0.44W
6	INRUSH CURRENT(Typ)	230VAC/ 50A COLD START (twidth=500us measured at 50% Ipeak) COLD START at 230V	I/P： 230 VAC O/P：FULL LOAD Ta：25℃	I = 39.61A/ 277VAC Twidth =398 us/50% Ipeak

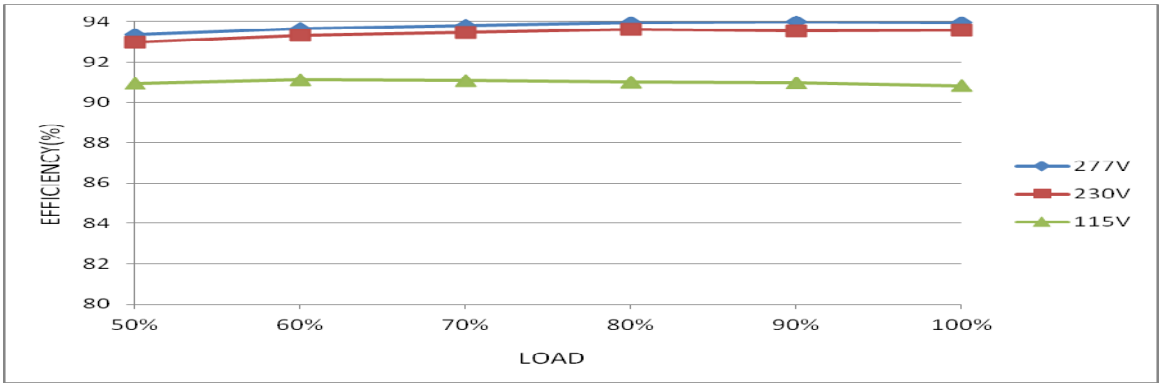
INPUT=230VAC/50HZ @ FULL LOAD

CH2： Input current CH1： AC Input Voltage



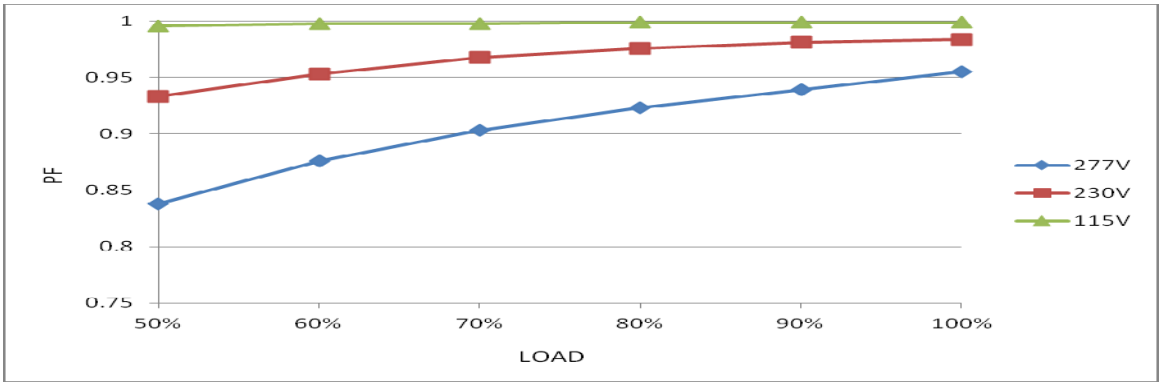
7	EFFICIENCY(Typ)	93%	I/P： 230VAC O/P： FULL LOAD Ta： 25℃	93.59%

EFFICIENCY vs LOAD



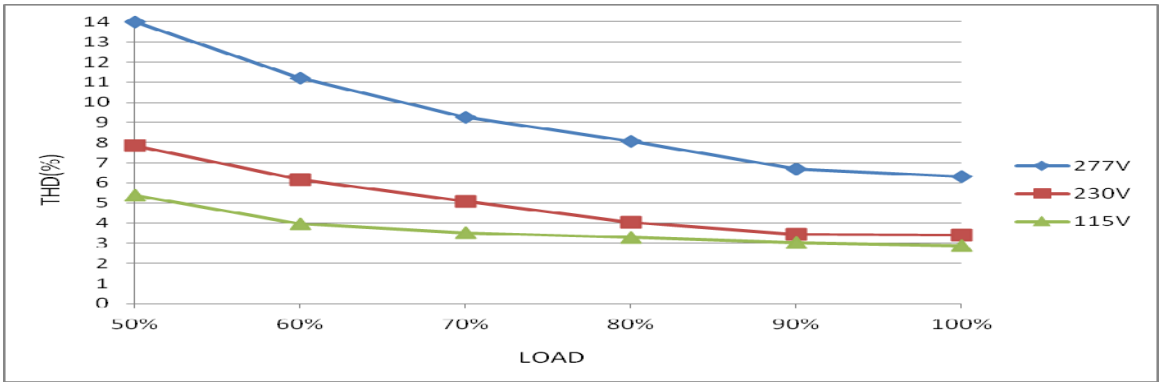
8	POWER FACTOR	0.92/ 277VAC 0.95/ 230VAC 0.97/ 115VAC	I/P： 277 VAC I/P： 230 VAC I/P： 115 VAC O/P： FULL LOAD Ta： 25℃	PF= 0.955 / 277VAC PF= 0.984 / 230VAC PF= 0.999 / 115VAC

P.F vs LOAD



9	TOTAL HARMONIC DISTORTION	THD＜10% （@load≥50%/115VAC， @load≥50%/230VAC， @load≥75%/277VAC）	I/P： 115 VAC/50% LOAD I/P： 230 VAC/50% LOAD I/P： 277 VAC/75% LOAD Ta： 25℃	THD=5.38% @50% load /115VAC THD=7.85% @50% load /230VAC THD=8.54% @75% load /277VAC

THD vs LOAD



PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER CURRENT PROTECTION	95%~108%	I/P： 100VAC I/P： 230VAC I/P： 305VAC O/P：TESTING Ta：25℃	100.3%/ 305VAC 100.3%/ 230VAC 100.3%/100VAC Constant Current Limiting，recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	27V~ 34V	I/P： 100VAC I/P： 230VAC I/P： 305VAC O/P：NO LOAD Ta：25℃	31.0V/ 100VAC 31.4V/ 230VAC 31.2V/ 305VAC Shut down output voltage，re-power on to recovery
3	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P： 100VAC I/P： 230VAC I/P： 305VAC O/P：FULL LOAD	O.T.P. Active Shut down output voltage，re-power on to recovery
4	SHORT CIRCUIT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P： 100VAC I/P： 305VAC O/P：FULL LOAD Ta：25℃	NO DAMAGE Hiccup mode，recovers automatically after fault condition is removed
5	INPUT OVER VOLTAGE (for XLG-150I only)	320 ~ 390VAC (Shut down output voltage when the input voltage exceeds protection voltage Can survive input voltage stress of 440Vac for 48 hours	I/P：TESTING O/P: FULL LOAD Ta:25℃	PASS

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Power Transistor	Q 5 Rated 11A/600V	I/P：High-Line +3V =308V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	 (1) 453 V (2) 461 V (3) 449 V
2	Diode Peak Voltage	Q100 Rated 63A/80V	I/P：High-Line +3V =308V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	 (1) 49.1 V (2) 8.4 V (3) 50.0 V
3	PFC Transistor	Q1 Rated 10.6A/650V	I/P：High-Line +3V =308V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	 (1) 484 V (2) 530 V (3) 474 V
4	P.F.C DIODE	D1 Rated 600V/9A	I/P：High-Line +3V =308V O/P： (1) Full Load Turn on (2) Output Short (3) Full load continue Ta：25℃	 (1)464V (2)473V (3)467V

5	Control IC	U1 Rated 27V (MAX.)	I/P：High-Line +3V =308 V O/P：((1) FULL LOAD (2) Output Short (3) O.L.P (4) O.V.P (5) Low Line No Load Vo(min) Ta：25℃	 (1) 12.1 V (2) 12.2 V (3) 12.1 V (4) 12.1 V (5) 12.0 V
6	Input Capacitor Voltage	C5 Rated： 82 μ / 450 V	I/P：High-Line +3V =308 V O/P: (1)Full Load input on/off (2) Min load input on /Off (3)Full Load /Min load Change (4)Full load continue Ta：25℃	 (1)452V (2)439V (3)454V (4)443V

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P：3.75KVAC/min I/P-FG： 2KVAC/min O/P-FG：1.5KVAC/min	I/P-O/P：4.125KVAC/min I/P-FG： 2.4 KVAC/min O/P-FG：1.8 KVAC/min Ta：25℃	I/P-O/P：2.68 mA I/P-FG： 2.574 mA O/P-FG：3.661 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℃	I/P-O/P：>9999 MΩ I/P-FG： >9999 MΩ O/P-FG：>9999 MΩ
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25℃	14mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS C	I/P：230 VAC/50HZ O/P：FULL/50% LOAD Ta：25℃	PASS
2	CONDUCTION	EN55015	I/P：230 VAC/50HZ O/P：FULL LOAD Ta：25℃	PASS Test by certified Lab
3	RADIATION	EN55015	I/P：230 VAC/50HZ O/P：FULL LOAD Ta：25℃	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 LIGHT INDUSTRY AIR：8KV Contact：4KV	I/P：230 VAC/50HZ O/P：FULL LOAD Ta：25℃	CRITERIA A
5	E.F.T	EN61000-4-4 LIGHT INDUSTRY INPUT：2KV	I/P： 230VAC/50HZ O/P：FULL LOAD Ta：25℃	CRITERIA A

6	SURGE	EN61000-4-5 LIGHT INDUSTRY L-N：4KV L,N-PE：6KV	I/P： 230VAC/50HZ O/P：FULL LOAD Ta：25℃	CRITERIA A
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-100-24A 1. ROOM AMBIENT BURN-IN：2 HRS I/P： 230VAC O/P： FULL LOAD Ta=27.1 ℃ 2. HIGH AMBIENT BURN-IN： 2 HRS I/P： 230VAC O/P： FULL LOAD Ta=55.1℃		

NO	Position	ROOM AMBIENT Ta=27.1 ℃	HIGH AMBIENT Ta=55.1 ℃
1	RTH2	59.3℃	83.0℃
2	BD1	53.7℃	79.5℃
3	ZNR3	53.7℃	79.7℃
4	L2	54.9℃	80.4℃
5	C10	54.6℃	80.7℃
6	Q1	54.4℃	80.4℃
7	C5	55.8℃	81.7℃
8	D1	54.9℃	82.1℃
9	Q5	54.8℃	82.1℃
10	Q6	55.5℃	83.0℃
11	U1	53.3℃	78.6℃
12	U2	60.6℃	86.9℃
13	C15	55.0℃	81.1℃
14	T1	61.2℃	87.0℃
15	T1core	57.9℃	83.8℃
16	Q100	55.1℃	81.8℃
17	Q101	55.7℃	82.6℃
18	U101	57.7℃	84.8℃
19	C105	54.2℃	80.5℃
20	RTH3	54.2℃	80.2℃
21	TC	49.2℃	74.7℃

2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P： 305VAC/100VAC O/P：100% LOAD Ta= -45℃/ -35℃	TEST：OK
3	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 55℃ NO DAMAGE	I/P： 305VAC O/P：FULL LOAD Ta=55℃ HUMIDITY= 95 %R.H	TEST：OK
4	TEMPERATURE COEFFICIENT	±0.06 %/℃(0~60℃)	I/P： 230 VAC O/P：FULL LOAD	±0.003 %/℃(0~60℃)

5	STORAGE TEMPERATURE TEST	-40℃~+80℃	1. Thermal shock Temperature： -50℃~+125℃ 2. Temperature change rate ： 25℃ / MIN 3. Dwell time low and high temperature ： 30 MIN/EACH 4. Total test cycle：200CYCLE 5. Input/Output condition： STATIC TEST：OK
6	THERMAL SHOCK TEST	-40~+55℃	1. Thermal shock Temperature： -45℃~+60℃ 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：72min in each axis (X.Y.Z) (6) Ta：25℃ TEST：OK
8	CAPACITOR LIFE CYCLE	XLG-150-24：SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P： 230VAC O/P：FULL LOAD Tc= 70 ℃ LIFE TIME (2) I/P： 230VAC O/P：75% LOAD Tc= 70 ℃ LIFE TIME (3) I/P： 230VAC O/P：50% LOAD Tc= 70 ℃ LIFE TIME	(1) 101589 HRS (2) 128185 HRS (3) 140697 HRS
9	MTBF	Conducted by Parts Stress Analysis Prediction 712.17K hrs min. Telcordia SR-332 (Bellcore) 213.3K 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/ZHOUB	WENF	LIUWY