



Test Report: NSP-75-36

75W AC/DC High Reliable Multi-Industries Enclosed Type Power Supply

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

E.M.C. Test

■ RELIABILITY TEST

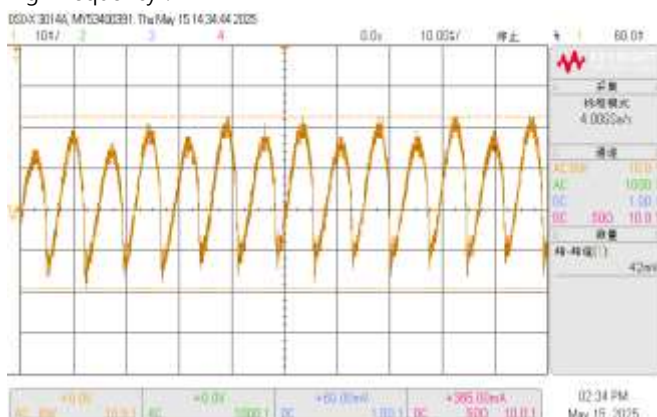
ENVIRONMENT TEST

■ DESIGN VERIFY TEST

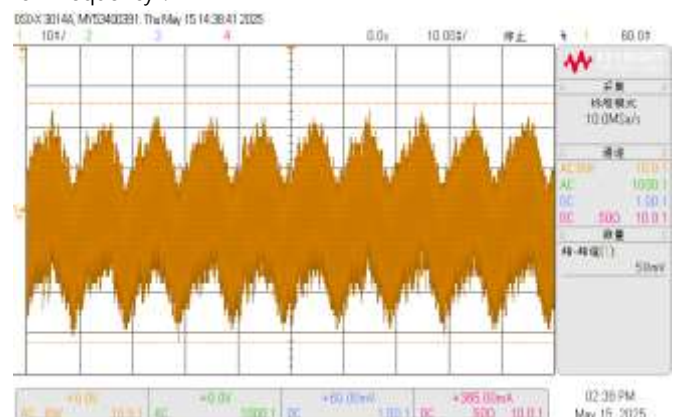
OUTPUT FUNCTION TEST

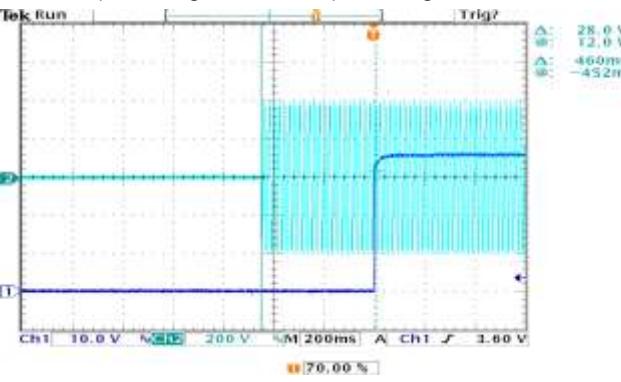
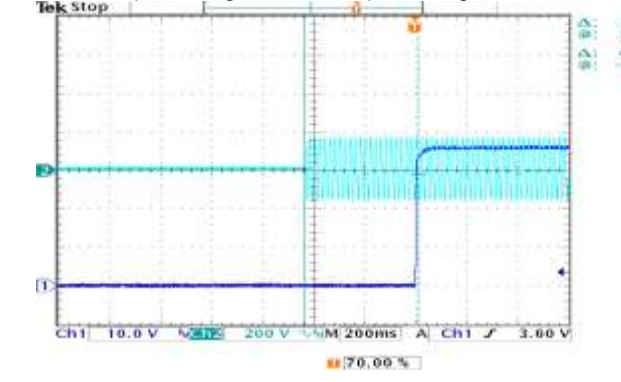
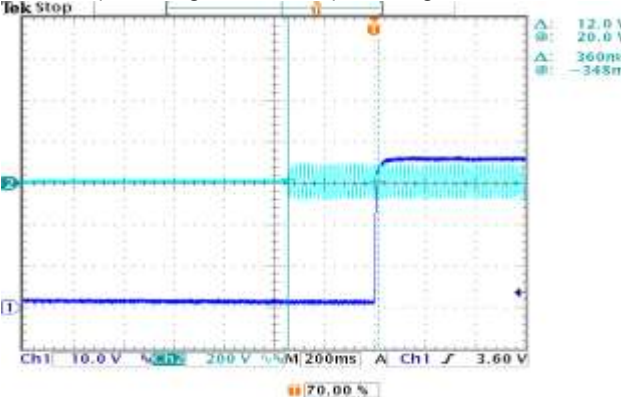
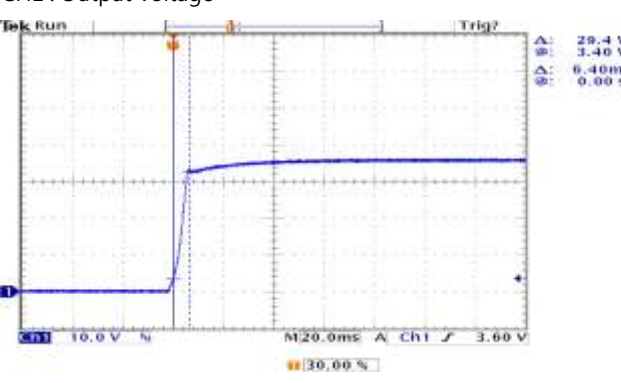
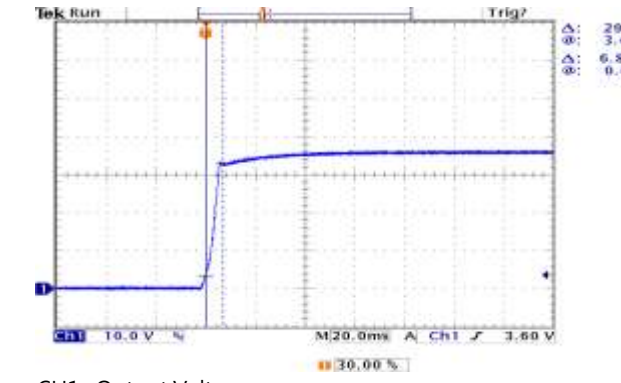
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 32 V~43V	I/P : 230 VAC O/P : MIN LOAD Ta : 25°C	30.68V~45.27V/230VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -1 %~ 1%	I/P: 85VAC /305VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: 0.33%~0.39%
3	LINE REGULATION	V1: -0.5%~ 0.5 %	I/P: 85VAC~ 305VAC O/P:FULL LOAD Ta:25°C	V1: -0.06%~0.06%
4	LOAD REGULATION	V1: -0.5%~ 0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0%~0.03%
5	OVER/UNDERSHOOT TEST	< ± 5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	1.14%
6	RIPPLE & NOISE (Max)	V1: 240mVp-p	I/P: 230 VAC O/P: MIN LOAD—FULL LOAD Ta:25°C	V1: 58mVp-p / 100% load

high frequency :

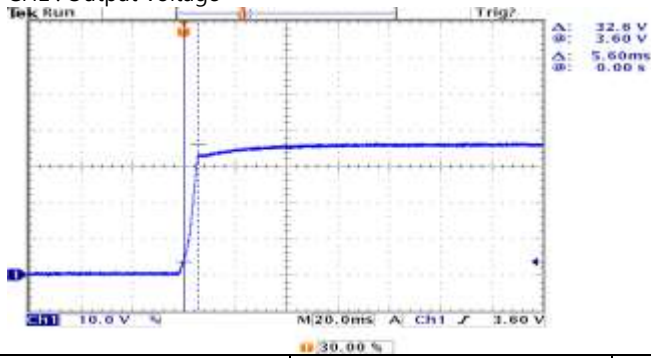


low frequency :



7	SET UP TIME(Max)	277VAC/1000ms 230VAC/1000ms 115VAC/1500ms	I/P : 277 VAC I/P : 230 VAC I/P : 115VAC O/P : FULL LOAD Ta : 25°C	277VAC/460 ms 230VAC/444ms 115VAC/360ms
<p>INPUT=277VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p>   <p>INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage</p> 				
8	RISE TIME (Max)	277VAC/80ms 230VAC/80ms 115VAC/80ms	I/P : 277 VAC I/P : 230 VAC I/P : 115VAC O/P : FULL LOAD Ta : 25°C	277VAC/ 6.4 ms 230VAC/6.8ms 115VAC/5.6ms
<p>INPUT=277VAC/60HZ @ FULL LOAD CH1 : Output Voltage</p>  <p>INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage</p> 				

INPUT=115VAC/60HZ @ FULL LOAD
CH1 : Output Voltage



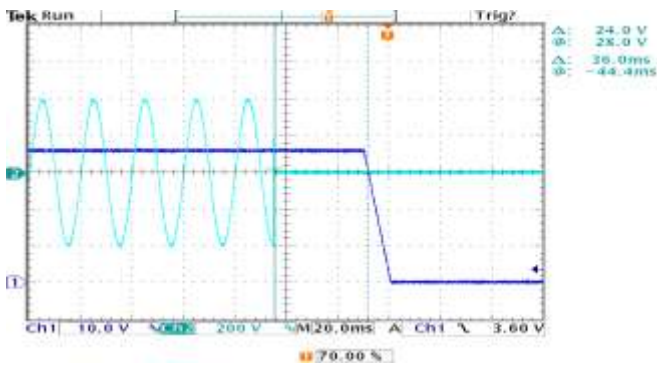
9 HOLD UP TIME (Typ.)

277VAC/16ms
230VAC/16ms
115VAC/16ms

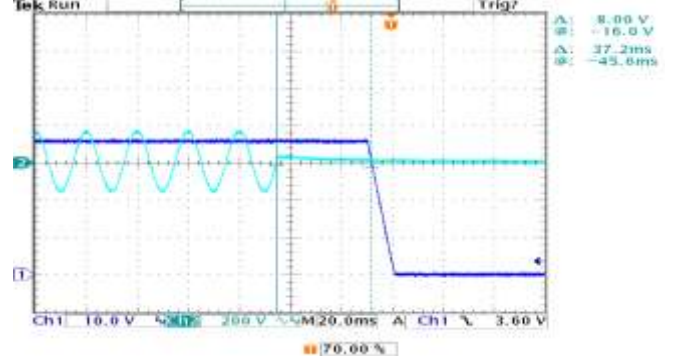
I/P : 277 VAC
I/P : 230 VAC
I/P : 115VAC
O/P : FULL LOAD
Ta : 25°C

277VAC/36 ms
230VAC/37.2ms
115VAC/36.8ms

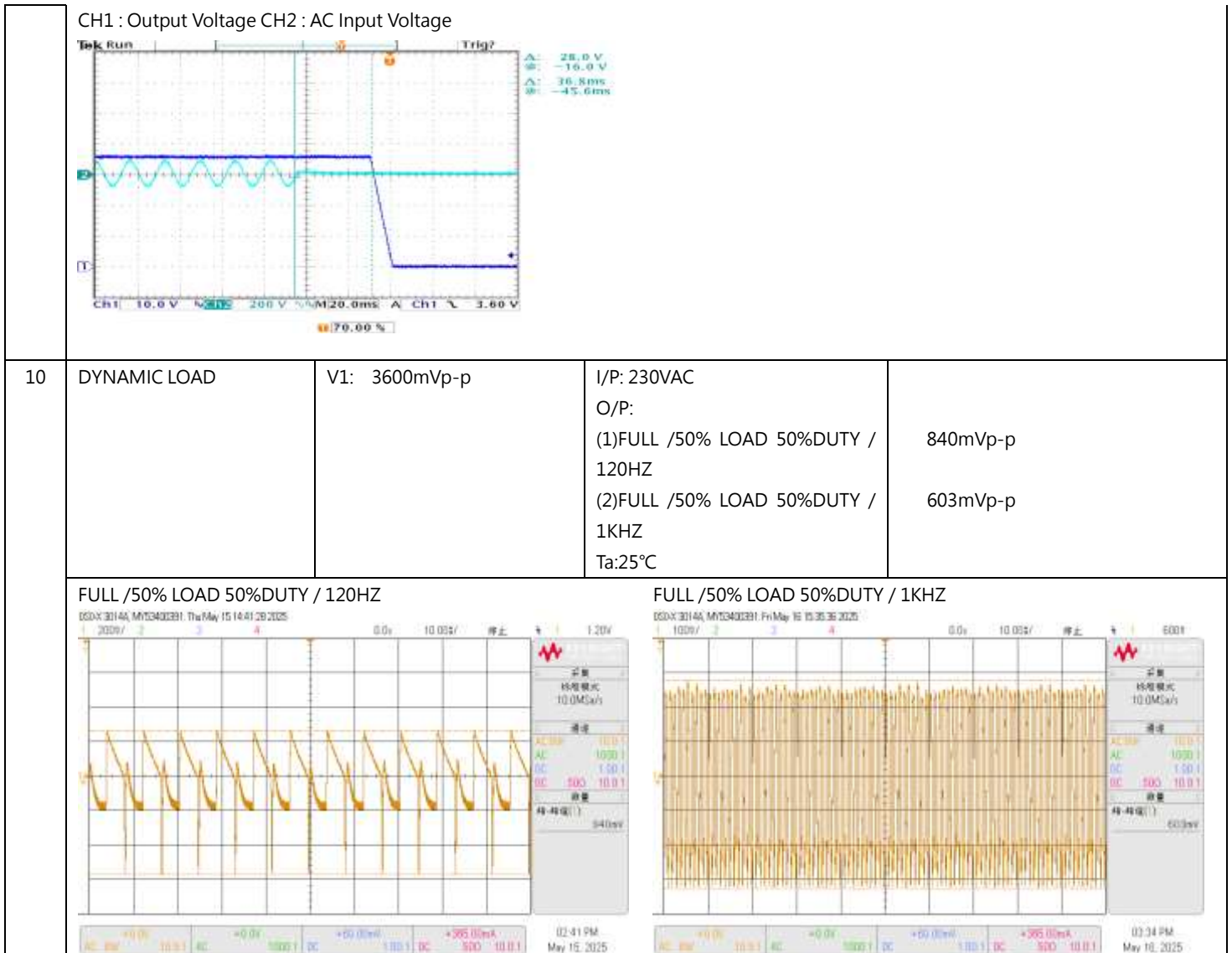
INPUT=277VAC/60HZ @ FULL LOAD
CH1 : Output Voltage CH2 : AC Input Voltage



INPUT=230VAC/50HZ @ FULL LOAD
CH1 : Output Voltage CH2 : AC Input Voltage



INPUT=115VAC/60HZ @ FULL LOAD

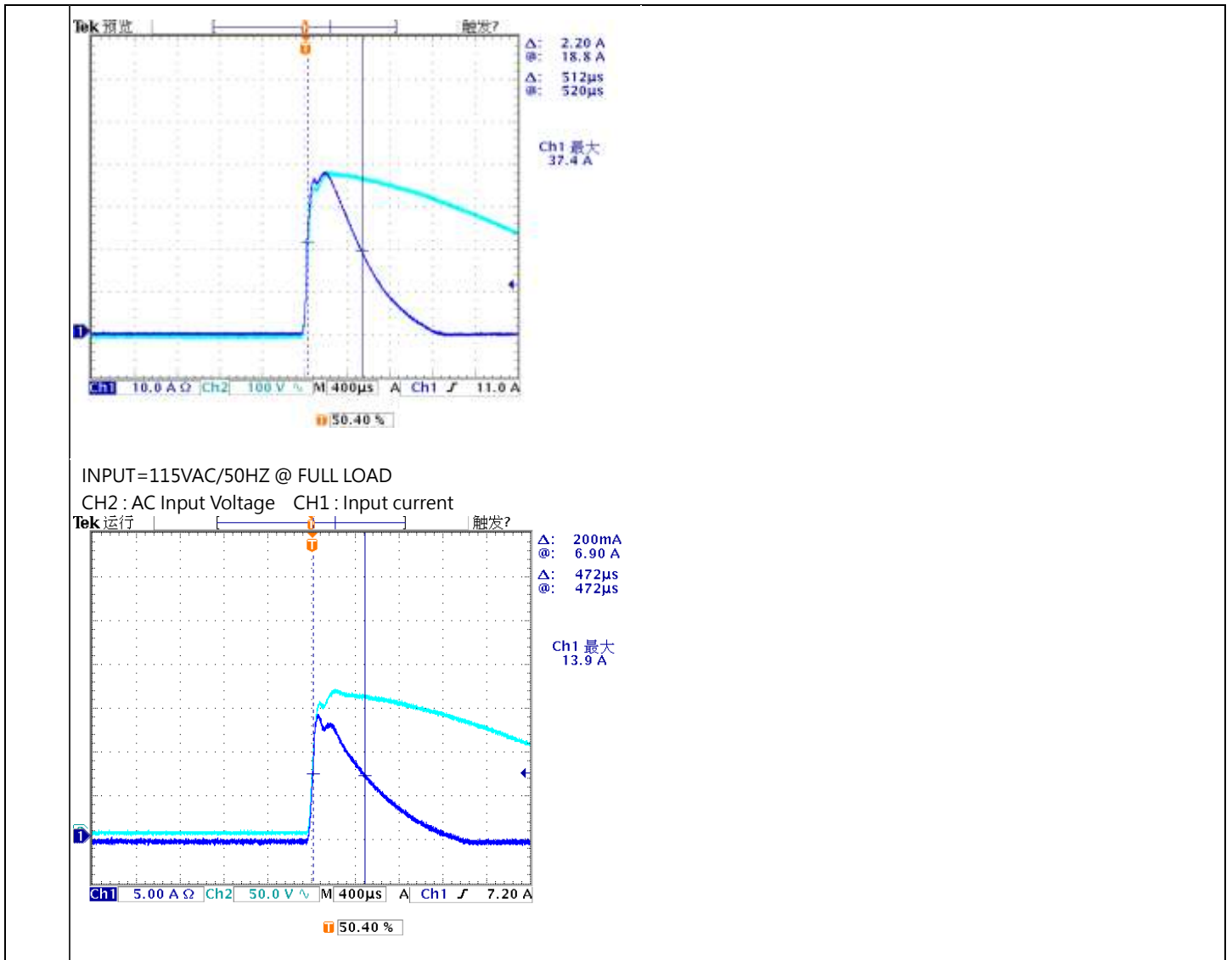


INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	85VAC~305VAC 120VDC~ 431VDC	(1) I/P:TESTING O/P:FULL LOAD (2) I/P:DC TESTING(L:+ N:-) O/P: FULL / 50% LOAD (3) I/P:DC TESTING(L:- N:+) O/P: FULL / 50% LOAD Ta:25°C	(1) 82V~308V (2) 115Vdc~ 434Vdc/FULL LOAD 115Vdc~ 434Vdc/50% LOAD (3) 115Vdc~434 Vdc/FULL LOAD 115 Vdc~434Vdc/50% LOAD

			I/P: LOW-LINE-3V=82 V HIGH-LINE+10V=315 V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	TEST:OK																																												
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:85VAC ~305VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK																																												
3	INPUT CURRENT (Typ.)	277V/ 0.35 A 230V/ 0.4 A 115V/ 0.8A	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =0.31A/ 277VAC I =0.36A/ 230VAC I =0.73A/ 115VAC																																												
4	LEAKAGE CURRENT	Earth leakage current <350µA(rms)@277Vac	I/P : 277 VAC O/P : Min LOAD Ta : 25°C	L-FG : 221µA N-FG : 218µA																																												
		Touch current <100µA(rms)@277Vac	I/P : 277 VAC O/P : Min LOAD Ta : 25°C	L-V+ : 52 µA L-V- : 51 µA N-V+ : 52 µA N-V- : 51 µA																																												
5	POWER FACTOR (Typ.)	0.90/277VAC 0.93/ 230VAC 0.98/ 115VAC	I/P : 277VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.993/277VAC PF=0.997/230VAC PF=0.998/115VAC																																												
<p>P.F vs LOAD</p> <table border="1"> <caption>Approximate data from P.F vs LOAD graph</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC PF</th> <th>230VAC PF</th> <th>277VAC PF</th> </tr> </thead> <tbody> <tr><td>10%</td><td>0.98</td><td>0.62</td><td>0.45</td></tr> <tr><td>20%</td><td>0.99</td><td>0.88</td><td>0.65</td></tr> <tr><td>30%</td><td>0.99</td><td>0.95</td><td>0.80</td></tr> <tr><td>40%</td><td>0.99</td><td>0.98</td><td>0.90</td></tr> <tr><td>50%</td><td>0.99</td><td>0.99</td><td>0.95</td></tr> <tr><td>60%</td><td>0.99</td><td>0.99</td><td>0.98</td></tr> <tr><td>70%</td><td>0.99</td><td>0.99</td><td>0.99</td></tr> <tr><td>80%</td><td>0.99</td><td>0.99</td><td>0.99</td></tr> <tr><td>90%</td><td>0.99</td><td>0.99</td><td>0.99</td></tr> <tr><td>100%</td><td>0.99</td><td>0.99</td><td>0.99</td></tr> </tbody> </table>					LOAD (%)	115VAC PF	230VAC PF	277VAC PF	10%	0.98	0.62	0.45	20%	0.99	0.88	0.65	30%	0.99	0.95	0.80	40%	0.99	0.98	0.90	50%	0.99	0.99	0.95	60%	0.99	0.99	0.98	70%	0.99	0.99	0.99	80%	0.99	0.99	0.99	90%	0.99	0.99	0.99	100%	0.99	0.99	0.99
LOAD (%)	115VAC PF	230VAC PF	277VAC PF																																													
10%	0.98	0.62	0.45																																													
20%	0.99	0.88	0.65																																													
30%	0.99	0.95	0.80																																													
40%	0.99	0.98	0.90																																													
50%	0.99	0.99	0.95																																													
60%	0.99	0.99	0.98																																													
70%	0.99	0.99	0.99																																													
80%	0.99	0.99	0.99																																													
90%	0.99	0.99	0.99																																													
100%	0.99	0.99	0.99																																													
6	EFFICIENCY(Typ.)	91.5%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	91.68%																																												

EFFICIENCY vs LOAD																																																
<table border="1"> <caption>Efficiency vs Load Data</caption> <thead> <tr> <th>LOAD (%)</th> <th>115VAC (%)</th> <th>230VAC (%)</th> <th>277VAC (%)</th> </tr> </thead> <tbody> <tr><td>10%</td><td>78</td><td>78</td><td>78</td></tr> <tr><td>20%</td><td>85</td><td>86</td><td>85</td></tr> <tr><td>30%</td><td>88</td><td>89</td><td>88</td></tr> <tr><td>40%</td><td>89</td><td>90</td><td>89</td></tr> <tr><td>50%</td><td>89</td><td>91</td><td>90</td></tr> <tr><td>60%</td><td>89</td><td>91</td><td>91</td></tr> <tr><td>70%</td><td>89</td><td>91</td><td>91</td></tr> <tr><td>80%</td><td>89</td><td>91</td><td>91</td></tr> <tr><td>90%</td><td>89</td><td>91</td><td>91</td></tr> <tr><td>100%</td><td>89</td><td>91</td><td>91</td></tr> </tbody> </table>					LOAD (%)	115VAC (%)	230VAC (%)	277VAC (%)	10%	78	78	78	20%	85	86	85	30%	88	89	88	40%	89	90	89	50%	89	91	90	60%	89	91	91	70%	89	91	91	80%	89	91	91	90%	89	91	91	100%	89	91	91
LOAD (%)	115VAC (%)	230VAC (%)	277VAC (%)																																													
10%	78	78	78																																													
20%	85	86	85																																													
30%	88	89	88																																													
40%	89	90	89																																													
50%	89	91	90																																													
60%	89	91	91																																													
70%	89	91	91																																													
80%	89	91	91																																													
90%	89	91	91																																													
100%	89	91	91																																													
7	NO LOAD POWER CONSUMPTION(Typ.)	Remote Power ON : 2W/277VAC 2W/230VAC 2W/115VAC Remote Power OFF : 0.5W/277VAC 0.5W/230VAC 0.3W/115VAC	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : RC ON/RC OFF Ta : 25°C	Remote Power ON : 0.7263W/277VAC 0.712W/230VAC 0.7064W/115VAC Remote Power OFF : 0.3775W/277VAC 0.3004W/230VAC 0.1248W/115VAC																																												
8	INRUSH CURRENT(Typ.)	277V/45A 230V/35A 115V/20A COLD START	I/P : 277 VAC I/P : 230 VAC I/P : 115VAC O/P : FULL LOAD Ta : 25°C	I =37.4A/ 277VAC T50=512 us/277V I =29.6A/ 230VAC T50=528us/230V I =13.9A/ 115VAC T50=472us/115V																																												
INPUT=277VAC/50HZ @ FULL LOAD CH2 : AC Input Voltage CH1 : Input current		INPUT=230VAC/50HZ @ FULL LOAD CH2 : AC Input Voltage CH1 : Input current																																														



PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105 ~ 200%	I/P: 305VAC I/P: 230VAC I/P: 85VAC O/P: TESTING Ta: 25°C	142.5%/ 305VAC 142.5%/ 230VAC 142.46%/85VAC Protection type: 1、Normally works within 105 ~ 200% rated output power for more than 5 seconds and then constant current limiting

				without shutdown($V_{out}>30\%$), recovers automatically after fault condition is removed, or shut down o/p voltage when $V_{out}<30\%$, AC re-power on to recover 2 · >200% rated power, constant current limiting ($V_{out}>30\%$) with auto-recovery after fault condition is removed, or shut down o/p voltage when $V_{out}<30\%$, AC re-power on to recover
2	OVER VOLTAGE PROTECTION	44V~54V	I/P: 305VAC I/P: 230VAC I/P: 85VAC O/P: MIN LOAD Ta:25°C	48.8V/ 305VAC 48.8V/ 230VAC 48.4V/ 85VAC Protection type : Shut down o/p voltage, AC re-power on to recover
3	OVER TEMPERATURE PROTECTION	NO DAMAGE	I/P: 305VAC I/P: 85VAC O/P: FULL LOAD	O.T.P. Active Protection type : Shut down o/p voltage, AC re-power on to recover
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 305VAC I/P: 85VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE Protection type : Constant current limiting for more than 5 seconds ($V_{out}<30\%$) and then shut down a/p voltage, AC re-power on to recover

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
----	-----------	---------------	----------------	--------

<p>1</p> <p>REMOTE ON/OFF CONTROL</p>	<p>2.Remote Control The PSU can be turned ON/OFF by using the "Remote Control" function with external switch and auxiliary power</p> <table border="1"> <tr> <td>PSU Vo Status</td> <td>Between RC-(pin1) and RC+(pin2) on CN1</td> </tr> <tr> <td>POWER ON</td> <td>Keep 0~0.8Vdc or open</td> </tr> <tr> <td>POWER OFF</td> <td>Keep 3.3~10Vdc by external voltage</td> </tr> </table> <p>I/P: 230 VAC O/P:FULL LOAD Ta:25°C Test Result :</p> <table border="1"> <tr> <td>Between ON/OFF</td> <td>Power Output Status</td> </tr> <tr> <td>SW ON (0~0.8V)</td> <td>ON</td> </tr> <tr> <td>SW OFF (3.3~10V)</td> <td>OFF</td> </tr> </table>	PSU Vo Status	Between RC-(pin1) and RC+(pin2) on CN1	POWER ON	Keep 0~0.8Vdc or open	POWER OFF	Keep 3.3~10Vdc by external voltage	Between ON/OFF	Power Output Status	SW ON (0~0.8V)	ON	SW OFF (3.3~10V)	OFF
PSU Vo Status	Between RC-(pin1) and RC+(pin2) on CN1												
POWER ON	Keep 0~0.8Vdc or open												
POWER OFF	Keep 3.3~10Vdc by external voltage												
Between ON/OFF	Power Output Status												
SW ON (0~0.8V)	ON												
SW OFF (3.3~10V)	OFF												
<p>2</p> <p>PEAK POWER</p>	<p>1. Peak Power</p> $P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} \leq P_{rated}$ $Duty = \frac{t}{T} \times 100\% \leq 35\%$ $t \leq 5 \text{ sec}$ <p> P_{av} : Average output power (W) P_{pk} : Peak output power (W) P_{nkp} : Non-peak output power (W) P_{rated} : Rated output power (W) t : Peak power width (sec) T : Period (sec) </p> <p>For example (24V model) : Vin = 200Vac Duty_max = 5% P_{av} = P_{rated} = 100W P_{pk} = 200W t ≤ 5 sec $T \geq \frac{5 \text{ sec}}{5\%} \geq 100 \text{ sec}$ $P_{pk} \leq \frac{TP_{av} - tP_{pk}}{T-t}$ P_{pk} ≤ 94.7W Note:When the output voltage is adjusted to the upper limit, the peak power is 150% rated power</p> <p>I/P: 100/305VAC O/P:PEAK LOAD (1Hour NO DAMGE) Ta:25°C Test Result: OK</p>												

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q6 Rated 650 V/11 A	<p>AC ON/OFF</p> <p>I/P:High-Line +3V =308V</p> <p>VDS:</p> <p>O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load.</p> <p>I/P:Low-Line -3V = 82V</p> <p>O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load.</p> <p>Ta:25°C</p>	<p>VDS:</p> <p>(1) 478V (2) 462V (3) 466V (4) 466V (5) 466V (6) 462V (7) 482V</p> <p>VDS:</p> <p>(1) 432V (2) 452V (3) 432V (4) 432V (5) 432V (6) 436V (7) 477V</p>
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated 650 V/15A	<p>I/P:High-Line +3V =308V</p> <p>AC ON/OFF</p> <p>O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load.</p> <p>I/P:Low-Line -3V =82V</p> <p>AC ON/OFF</p> <p>O/P: (1)Full Load (2)Output Short</p>	<p>VDS:</p> <p>(1) 472V (2) 459V (3) 447V (4) 452V (5) 456V (6) 459V (7) 459V</p> <p>VDS:</p> <p>(1) 500V (2) 472V</p>

			<p>(3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz</p> <p>(4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz</p> <p>(5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz</p> <p>(6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz</p> <p>(7)0%→400% Load.</p> <p>Ta:25°C</p>	<p>(3) 492V</p> <p>(4) 468V</p> <p>(5) 460V</p> <p>(6) 492V</p> <p>(7) 484V</p>
3	P.F.C DIODE	D8 Rated 4 A/650V	<p>I/P:High-Line +3V =308 V</p> <p>AC ON/OFF</p> <p>O/P: (1)Full Load</p> <p>(2)Output Short</p> <p>(3)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz</p> <p>(4)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz</p> <p>I/P:Low-Line -3V = 82V</p> <p>AC ON/OFF</p> <p>O/P: (1)Full Load</p> <p>(2)Output Short</p> <p>(3)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz</p> <p>(4)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz</p> <p>Ta:25°C</p>	<p>(1) 434V</p> <p>(2) 430V</p> <p>(3) 430V</p> <p>(4) 438V</p> <p>(1) 442V</p> <p>(2) 434V</p> <p>(3) 442V</p> <p>(4) 438V</p>
4	Diode Peak Voltage	D101 Rated 20A/150V	<p>AC ON/OFF</p> <p>I/P:High-Line +3V =308 V</p> <p>O/P: (1)Full Load</p> <p>(2)Output Short</p> <p>(3)Dynamic Load Full Load/ Min. Load 90%Duty/1KHz</p> <p>(4)Dynamic Load Full Load/ Min. Load 90%Duty/3KHz</p> <p>(5)Dynamic Load Full Load/ Min. Load 90%Duty/5KHz</p> <p>(6)Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz</p> <p>(7)0%→400% Load.</p> <p>(8).NO LOAD</p> <p>Ta:25°C</p>	<p>D101:</p> <p>(1) 99.3V</p> <p>(2) 13.4V</p> <p>(3) 99.1V</p> <p>(4) 99.9V</p> <p>(5) 100.7V</p> <p>(6) 100.7V</p> <p>(7) 101.5V</p> <p>(8) 90.3V</p>
5	Input Capacitor Voltage	C5 Rated: 68μ/ 450V Surge voltage:500V	<p>I/P:High-Line +3V =308V</p> <p>O/P: (1)Full Load input on/off</p> <p>(2) Min load input on /Off</p> <p>(3)Full Load /Min load Change</p> <p>(4)Full load continue</p>	<p>(1)429V</p> <p>(2)429V</p> <p>(3)437V</p> <p>(4)425 V</p>

			Ta:25°C	
6	Control IC Voltage Test	PWM IC U2 Rated -0.4 V~ 30 V	AC ON/OFF I/P:High-Line +3V =308 V O/P(1)FULL LOAD (2) Output Short (3)O.L.P (4)O.V.P. (5)NO LOAD VRmin(Low LINE) Ta:25°C	U2 (1) 18.9V (2) 18.7V (3) 18.9V (4) 18.9V (5) 12.0V

■ SAFETY& E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4.2 K VAC/min I/P-FG : 2.1 K VAC/min O/P-FG: 1.5 KVAC/min	I/P-O/P: 4.62 KVAC/min I/P-FG: 2.52 KVAC/min O/P-FG: 1.8 KVAC/min Ta:25°C	I/P-O/P: 1.932 mA I/P-FG: 1.943 mA O/P-FG: 1.555 mA
2	ISOLATION RESISTANCE	I/P-O/P: 500 VDC>100MΩ I/P-FG: 500 VDC>100MΩ O/P-FG: 500 VDC >100MΩ	I/P-O/P: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: >9999 MΩ I/P-FG: >9999 MΩ O/P-FG: >9999 MΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	9 mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	BS EN/EN55032(CISPR32),CNS 15936 EN/EN55014-1(CISPR14-1) EN/EN55011(CISPR11)	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	BS EN/EN55032(CISPR32),CNS 15936 EN/EN55014-1(CISPR14-1) EN/EN55011(CISPR11)	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
4	E.S.D	EN61000-4-2 AIR : 15KV / Contact : 8KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
5	E.F.T	EN61000-4-4 INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	IEC61000-4-5 L-N : 2KV L,N-PE : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	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 : NSP-75-48 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=26 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=60.8 °C																																																																																						
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta=26 °C</th> <th>HIGH AMBIENT Ta=60.8 °C</th> </tr> </thead> <tbody> <tr><td>1</td><td>LF1</td><td>44.5°C</td><td>78.7°C</td></tr> <tr><td>2</td><td>C2</td><td>50.7°C</td><td>82.8°C</td></tr> <tr><td>3</td><td>RTH1</td><td>62.7°C</td><td>88.6°C</td></tr> <tr><td>4</td><td>L1</td><td>50.9°C</td><td>82.9°C</td></tr> <tr><td>5</td><td>L2</td><td>50.2°C</td><td>83.2°C</td></tr> <tr><td>6</td><td>C10</td><td>51.2°C</td><td>84.1°C</td></tr> <tr><td>7</td><td>Q1</td><td>47.4°C</td><td>81.9°C</td></tr> <tr><td>8</td><td>C5</td><td>48.7°C</td><td>81.9°C</td></tr> <tr><td>9</td><td>U2</td><td>58.8°C</td><td>93.0°C</td></tr> <tr><td>10</td><td>C36</td><td>54.3°C</td><td>88.1°C</td></tr> <tr><td>11</td><td>BD1</td><td>56.1°C</td><td>87.6°C</td></tr> <tr><td>12</td><td>D8</td><td>52.1°C</td><td>85.3°C</td></tr> <tr><td>13</td><td>Q5</td><td>52.1°C</td><td>86.0°C</td></tr> <tr><td>14</td><td>T1</td><td>66.3°C</td><td>99.9°C</td></tr> <tr><td>15</td><td>C202</td><td>55.1°C</td><td>88.5°C</td></tr> <tr><td>16</td><td>C105</td><td>54.5°C</td><td>87.8°C</td></tr> <tr><td>17</td><td>U4</td><td>50.9°C</td><td>84.8°C</td></tr> <tr><td>18</td><td>U101</td><td>54.3°C</td><td>87.6°C</td></tr> <tr><td>19</td><td>D100</td><td>66.7°C</td><td>98.4°C</td></tr> <tr><td>20</td><td>RTH3</td><td>51.6°C</td><td>86.3°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta=26 °C	HIGH AMBIENT Ta=60.8 °C	1	LF1	44.5°C	78.7°C	2	C2	50.7°C	82.8°C	3	RTH1	62.7°C	88.6°C	4	L1	50.9°C	82.9°C	5	L2	50.2°C	83.2°C	6	C10	51.2°C	84.1°C	7	Q1	47.4°C	81.9°C	8	C5	48.7°C	81.9°C	9	U2	58.8°C	93.0°C	10	C36	54.3°C	88.1°C	11	BD1	56.1°C	87.6°C	12	D8	52.1°C	85.3°C	13	Q5	52.1°C	86.0°C	14	T1	66.3°C	99.9°C	15	C202	55.1°C	88.5°C	16	C105	54.5°C	87.8°C	17	U4	50.9°C	84.8°C	18	U101	54.3°C	87.6°C	19	D100	66.7°C	98.4°C	20	RTH3	51.6°C	86.3°C
NO	Position	ROOM AMBIENT Ta=26 °C	HIGH AMBIENT Ta=60.8 °C																																																																																					
1	LF1	44.5°C	78.7°C																																																																																					
2	C2	50.7°C	82.8°C																																																																																					
3	RTH1	62.7°C	88.6°C																																																																																					
4	L1	50.9°C	82.9°C																																																																																					
5	L2	50.2°C	83.2°C																																																																																					
6	C10	51.2°C	84.1°C																																																																																					
7	Q1	47.4°C	81.9°C																																																																																					
8	C5	48.7°C	81.9°C																																																																																					
9	U2	58.8°C	93.0°C																																																																																					
10	C36	54.3°C	88.1°C																																																																																					
11	BD1	56.1°C	87.6°C																																																																																					
12	D8	52.1°C	85.3°C																																																																																					
13	Q5	52.1°C	86.0°C																																																																																					
14	T1	66.3°C	99.9°C																																																																																					
15	C202	55.1°C	88.5°C																																																																																					
16	C105	54.5°C	87.8°C																																																																																					
17	U4	50.9°C	84.8°C																																																																																					
18	U101	54.3°C	87.6°C																																																																																					
19	D100	66.7°C	98.4°C																																																																																					
20	RTH3	51.6°C	86.3°C																																																																																					
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 129 % LOAD Ta : 25°C	TEST : OK																																																																																				
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 85VAC/305VAC O/P : 80/100 % LOAD Ta=-35/-45 °C	TEST : OK																																																																																				
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C/95 %R.H NO DAMAGE	I/P : 315 VAC O/P : FULL LOAD Ta= 50 °C HUMIDITY= 95 %R.H	TEST : OK																																																																																				
5	TEMPERATURE COEFFICIENT	± 0.05 %/°C(0~60°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.016 %/°C(0~60°C)																																																																																				
6	STORAGE TEMPERATURE TEST	-40~85°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 : 10 CYCLE 5. Input/Output condition : STATIC																																																																																					

7	THERMAL SHOCK TEST	-30~60°C	1. Thermal shock Temperature : -35°C~ +65°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 16 CYCLE 5. Input/Output condition : 15cycle:230V/ FULL LOAD AC ON 3sec/AC OFF 1sec TEST 1cycle:230V/ FULL LOAD Burn In Test	
8	VIBRATION TEST	10 ~ 500Hz, 2G 10min./1cycle, 60min. 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 : 3G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C	
9	CAPACITOR LIFE CYCLE	SUPPOSE C105 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta=25 °C LIFE TIME (2) I/P : 230VAC O/P : FULL LOAD Ta=60 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta=60 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta=60 °C LIFE TIME	(1) 431932HRS	(2) 42360HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 2163.5K hrs min. Telcordia SR-332 (Bellcore) ; 250.4K hrs min. MIL-HDBK-217F (25°C)		
11	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	WUWQIN/ZHOUBIAO	WENF	WUWQ

2020.10.1 TAG-QA-009