



Test Report: NSP-750-36

750W 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

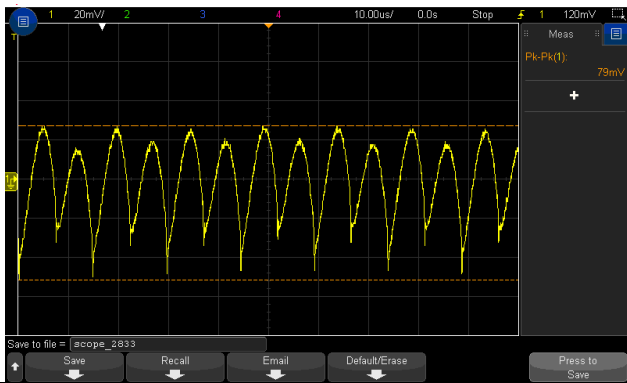
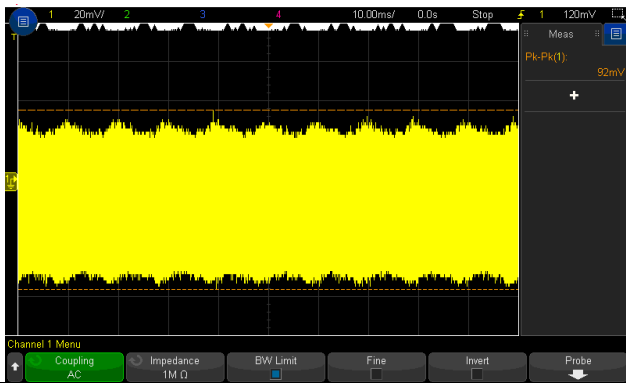
E.M.C. Test

■ RELIABILITY TEST

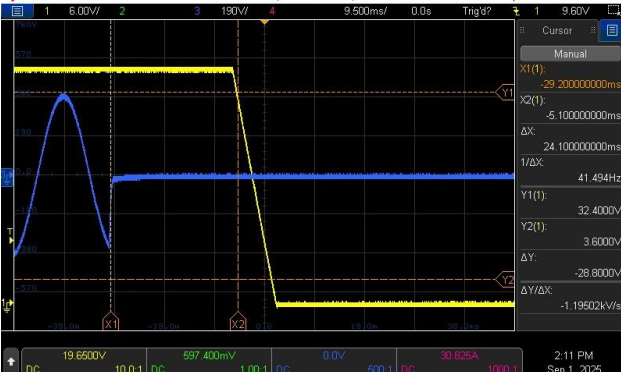
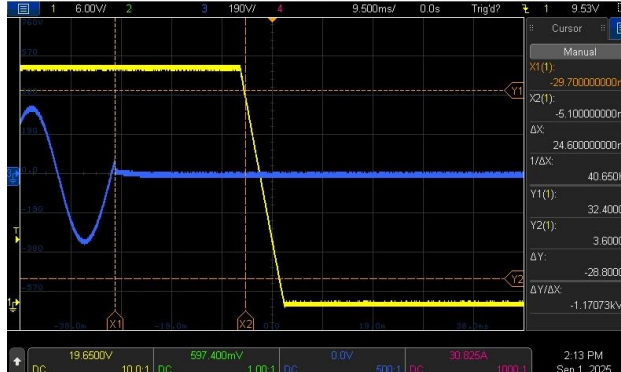
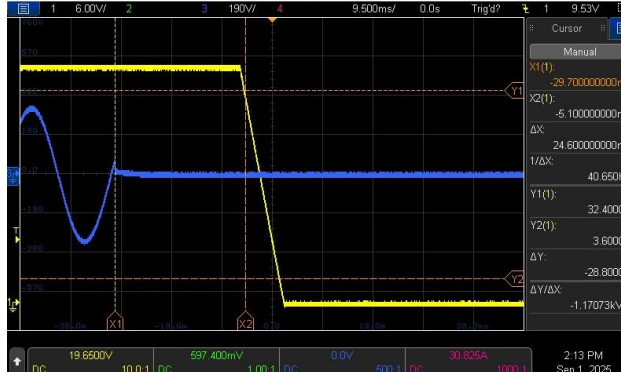
ENVIRONMENT TEST

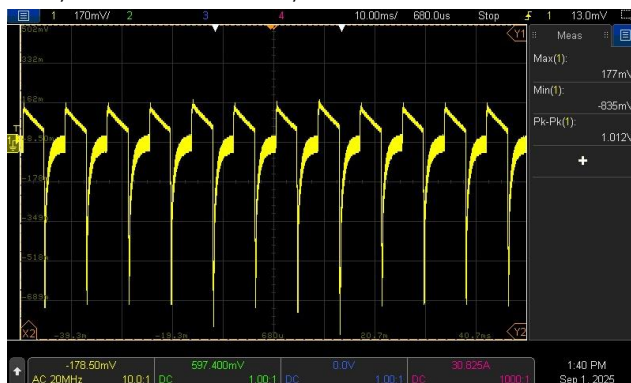
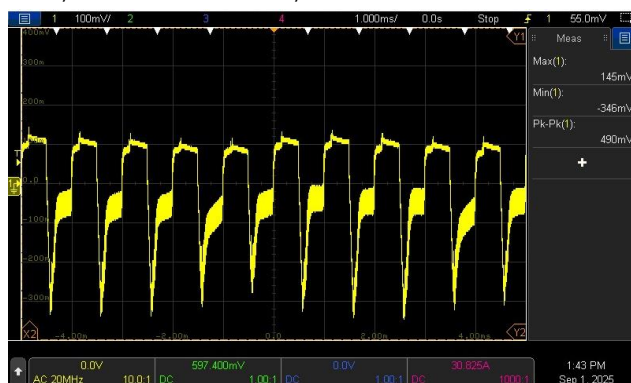
DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

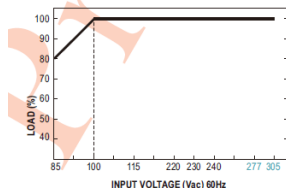
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 32V~43V	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	31.408V~44.475V/277VAC 31.406V~44.475V/230VAC 31.408V~44.476V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -1% ~ +1%	I/P: 85VAC~305VAC O/P:FULL~MIN. LOAD Ta:25°C	V1: -0.011% ~ 0.017%
3	LINE REGULATION	V1: -0.5% ~ +0.5%	I/P: 85VAC~ 305VAC O/P:FULL LOAD Ta:25°C	V1: 0% ~ 0.014%
4	LOAD REGULATION	V1: -0.5% ~ +0.5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.011% ~ 0.017%
5	OVER/UNDERSHOOT TEST	<± 5%	I/P: 230VAC O/P:FULL LOAD / NO LOAD Ta:25°C	1.3%
6	RIPPLE & NOISE (Max)	V1: 240mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	79mVp-p / high frequency 92mVp-p / low frequency
high frequency :  low frequency : 				
7	SET UP TIME(Max)	277VAC/900ms 230VAC/1000ms 115VAC/1500ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/204.9ms 230VAC/271.5ms 115VAC/672.1ms
INPUT=277VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage			INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage	

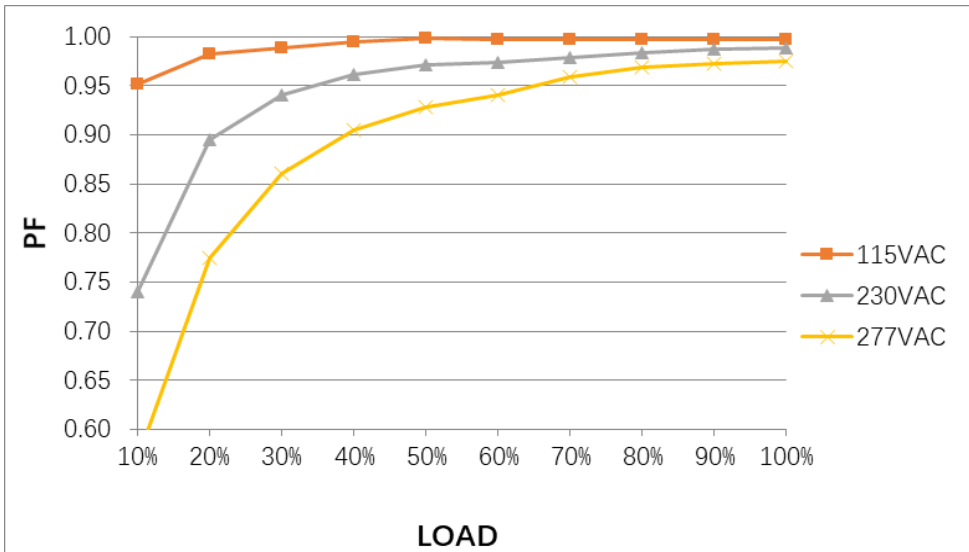
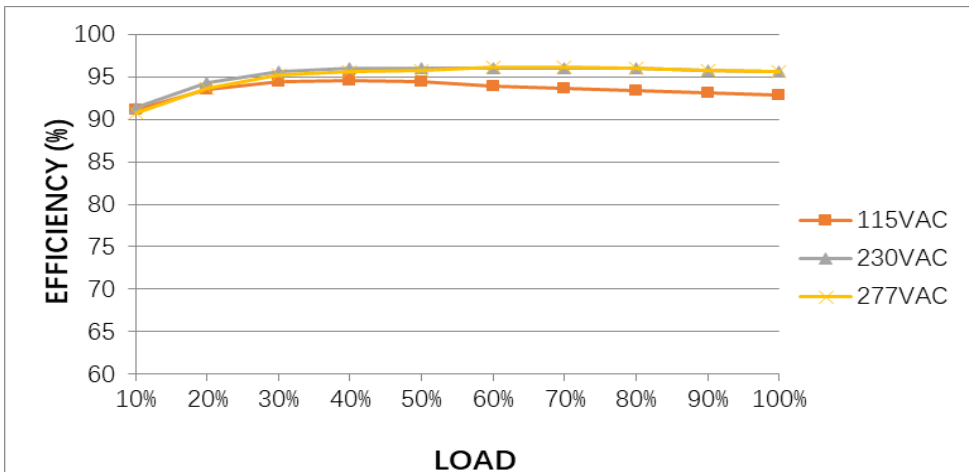
	INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage			
8	RISE TIME (Max)	277VAC/80ms 230VAC/80ms 115VAC/80ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/5.1ms 230VAC/5.1ms 115VAC/5.1ms
INPUT=277VAC/50HZ @ FULL LOAD CH1: Output Voltage INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage				

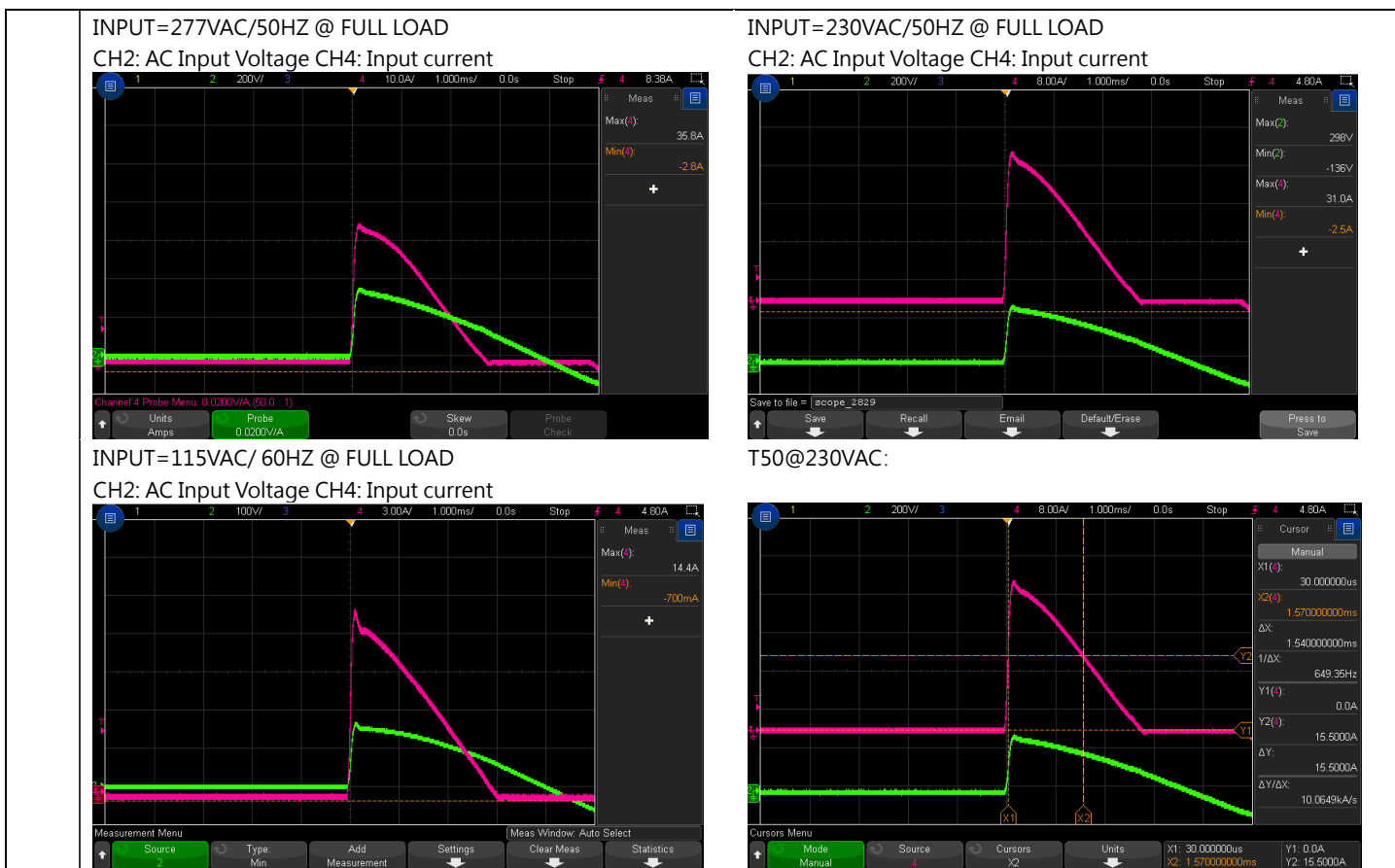
		
9	HOLD UP TIME (Typ.) 277VAC/16ms 230VAC/16ms 115VAC/16ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C
	INPUT=277VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage  INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage  INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage 	INPUT=277VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage  INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage  INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage 
10	DYNAMIC LOAD V1: 3600mVp-p	I/P: 230VAC O/P: (1) FULL/ MIN LOAD 50%DUTY / 120HZ (2) FULL/ MIN LOAD 50%DUTY / 1KHZ Ta:25°C

FULL / MIN LOAD 50%DUTY / 120HZ		FULL / MIN LOAD 50%DUTY / 1KHZ		
				
11	TRANSIENT RECOVERY TIME	V1: 3600mVp-p <500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	199mVp-p

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT			
1	INPUT VOLTAGE RANGE	85VAC~305VAC 120VDC~ 431VDC ■ Output Derating vs. Input Voltage 	(1) I/P: TESTING O/P: FULL / 80% LOAD (2) I/P: DC TESTING (L: + N: -) O/P: FULL / 80% LOAD (3) I/P: DC TESTING (L: - N: +) O/P: FULL / 80% LOAD Ta:25°C I/P: HIGH-LINE+10V=315V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	(1) 80.2V~305V/ FULL LOAD 80.2V~305V/ 80% LOAD (2) 115.5Vdc~431Vdc/FULL LOAD 110.6Vdc~431Vdc/80% LOAD (3) 115.6dc~431Vdc/FULL LOAD 110.5Vdc~431Vdc/80% LOAD 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/ 3.2 A 230V/ 3.9 A 115V/ 8.2 A	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =2.902A/ 277VAC I =3.4845A/ 230VAC I =7.205A/ 115VAC			
4	LEAKAGE CURRENT	Earth leakage current < 350uA (rms)@277Vac touch current<100uA(rms) @ 277Vac	I/P : 277 VAC/60HZ O/P : Min LOAD Ta : 25°C	For Earth: 198.0uA For touch: 26.7A			
5	NO LOAD CONSUMPTION	Remote Power OFF: 0.75W/115Vac 0.75W/230Vac 1W/277Vac	I/P : 115VAC I/P : 230VAC I/P : 277VAC O/P : NO LOAD	TEST: <table><tr><td></td><td>Remote Power OFF</td><td>Remote Power ON</td></tr></table>		Remote Power OFF	Remote Power ON
	Remote Power OFF	Remote Power ON					

		Remote Power ON: 5W/115Vac 5W/230Vac 5W/277Vac	Ta : 25°C	<table><tr><td>115VAC</td><td>0.348W</td><td>3.948W</td></tr><tr><td>230VAC</td><td>0.462W</td><td>3.688W</td></tr><tr><td>277VAC</td><td>0.62W</td><td>3.432W</td></tr></table>	115VAC	0.348W	3.948W	230VAC	0.462W	3.688W	277VAC	0.62W	3.432W																																			
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6	POWER FACTOR (Typ.)	0.90/ 277VAC 0.93/ 230VAC 0.98/115VAC	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.979/277VAC PF=0.9873/230VAC PF=0.997/115VAC																																												
P.F vs LOAD  <table><caption>Approximate Power Factor (PF) 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>0.95</td><td>0.74</td><td>0.60</td></tr><tr><td>20</td><td>0.98</td><td>0.89</td><td>0.77</td></tr><tr><td>30</td><td>0.99</td><td>0.94</td><td>0.86</td></tr><tr><td>40</td><td>0.995</td><td>0.96</td><td>0.90</td></tr><tr><td>50</td><td>1.00</td><td>0.97</td><td>0.93</td></tr><tr><td>60</td><td>1.00</td><td>0.975</td><td>0.95</td></tr><tr><td>70</td><td>1.00</td><td>0.98</td><td>0.96</td></tr><tr><td>80</td><td>1.00</td><td>0.985</td><td>0.97</td></tr><tr><td>90</td><td>1.00</td><td>0.988</td><td>0.975</td></tr><tr><td>100</td><td>1.00</td><td>0.99</td><td>0.978</td></tr></tbody></table>					Load (%)	115VAC	230VAC	277VAC	10	0.95	0.74	0.60	20	0.98	0.89	0.77	30	0.99	0.94	0.86	40	0.995	0.96	0.90	50	1.00	0.97	0.93	60	1.00	0.975	0.95	70	1.00	0.98	0.96	80	1.00	0.985	0.97	90	1.00	0.988	0.975	100	1.00	0.99	0.978
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7	EFFICIENCY(Typ.)	95%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	95.52%																																												
EFFICIENCY vs LOAD  <table><caption>Approximate 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>91</td><td>91</td><td>91</td></tr><tr><td>20</td><td>94</td><td>95</td><td>94</td></tr><tr><td>30</td><td>95</td><td>96</td><td>95</td></tr><tr><td>40</td><td>95</td><td>96</td><td>96</td></tr><tr><td>50</td><td>95</td><td>96</td><td>96</td></tr><tr><td>60</td><td>94</td><td>96</td><td>96</td></tr><tr><td>70</td><td>94</td><td>96</td><td>96</td></tr><tr><td>80</td><td>93.5</td><td>96</td><td>96</td></tr><tr><td>90</td><td>93</td><td>96</td><td>96</td></tr><tr><td>100</td><td>92.5</td><td>96</td><td>96</td></tr></tbody></table>					Load (%)	115VAC	230VAC	277VAC	10	91	91	91	20	94	95	94	30	95	96	95	40	95	96	96	50	95	96	96	60	94	96	96	70	94	96	96	80	93.5	96	96	90	93	96	96	100	92.5	96	96
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8	INRUSH CURRENT(Typ.)	277V/50A 230V/40A 115V/25A COLD START	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =35.8A/ 277VAC I =31.0A/ 230VAC I =14.4A/ 115VAC T50=1540 us/230V																																												



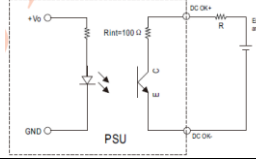
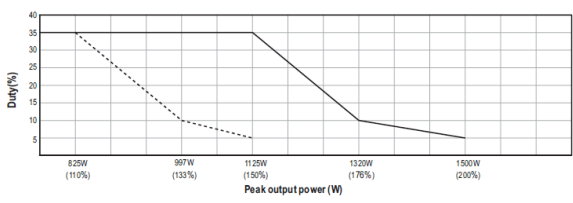
PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	Protection type: 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. >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.	I/P: 305VAC I/P: 230VAC I/P:180VAC I/P: 100VAC O/P:TESTING Ta:25°C	TEST : 113.63%/305VAC, 113.63%/230VAC, 113.63%/100VAC Protection type: 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. <u>213.88 %</u>/305VAC <u>214.35 %</u>/180VAC <u>186.6 %</u>/100VAC Protection type:

				>200% rated power, constant current limiting (Vout>30%)with auto-recovery after fault condition is removed, or shut down o/p voltage when Vout<30%,AC re-power on to recover.
2	OVER VOLTAGE PROTECTION	44V~ 54V Protection type: Shut down o/p voltage, AC re-power on to recover	I/P: 305VAC I/P: 85VAC O/P:MIN LOAD Ta:25°C	49.1V/ 305VAC 49.5V/ 85VAC PROTECTION TYPE : Shut down o/p voltage, AC re-power on to recover
3	OVER TEMPERATURE PROTECTION	Protection type: Shut down o/p voltage, recovers automatically after fault condition is removed	I/P: 305VAC I/P: 85VAC O/P:FULL LOAD	TEST : <u>OK</u> O.T.P. Active Protection type : Shut down o/p voltage, recovers automatically after fault condition is removed
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE Protection type: Constant current limiting for more than 5 seconds (Vout<30%) and then shut down o/p voltage, AC re-power on to recover or Hiccup mode, recovery automatically after fault condition is removed. Depends on the user's wire impedance.	I/P: 305VAC I/P: 85VAC O/P:FULL LOAD	NO DAMAGE Protection type: Constant current limiting for more than 5 seconds (Vout<30%) and then shut down o/p voltage, AC re-power on to recover or Hiccup mode, recovery automatically after fault condition is removed. Depends on the user's wire impedance.

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT									
1	AUXILIARY POWER (AUX)	1. 5Vaux @ 0.2A, Tolerance -15% ~ +15% at main output 20% rated current; 2. 12Vaux @ 0.8A, Tolerance -15% ~ +15% at main output 20% rated current. I/P: 230 VAC O/P:20% LOAD Ta:25°C Test Result : <table><thead><tr><th>AUX</th><th>TOLERANCE</th><th>RIPPLE</th></tr></thead><tbody><tr><td>5V / 0.2A</td><td>-1.1% ~ 0%</td><td>18mVp-p</td></tr><tr><td>12V / 0.8A</td><td>-0.583% ~0%</td><td>11mVp-p</td></tr></tbody></table>	AUX	TOLERANCE	RIPPLE	5V / 0.2A	-1.1% ~ 0%	18mVp-p	12V / 0.8A	-0.583% ~0%	11mVp-p		
AUX	TOLERANCE	RIPPLE											
5V / 0.2A	-1.1% ~ 0%	18mVp-p											
12V / 0.8A	-0.583% ~0%	11mVp-p											
2	REMOTE CONTROL	POWER ON: short between RC+(pin11)&5V-AUX(pin13) on	I/P:230VAC O/P:FULL LOAD	TEST: <u>OK</u>									

		CN1; POWER OFF: open between RC+(pin11)&5V-AUX(pin13) on CN1	Ta:25°C	
3	REMOTE SENSE	S+ / S- The remote sensing compensates voltage drop on the load wiring up to 0.3V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: <u>OK</u>
4	DC OK SIGNAL	15Vdc/10mA resistive load 	I/P:230VAC O/P:FULL LOAD Ta:25°C	TEST: <u>OK</u>
5	FAN CONTROL	(1)Fan ON/OFF control: RTH3 ≥ 50°C ± 10°C FAN ON RTH3 ≤ 40°C ± 10°C FAN OFF	I/P:230VAC O/P:TESTING	TEST: (1) <u>OK</u> (2) <u>44.8</u> dB Ta:25°C
6	PEAK Power	I/P: 100/305VAC O/P: 		TEST: <u>OK</u>

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q2/Q3 : Rated: 600V/40A	AC ON/OFF I/P: High-Line +3V =308V VDS: 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.	Q2 VDS: (1) 514V (2) 546V (3) 518V (4) 514V (5) 514V (6) 510V (7) 546V (8) 514V Q3 VDS: (1) 494V (2) 522V (3) 494V (4) 494V (5) 494V (6) 494V (7) 522V (8) 494V

			(8) Peak Load Ta:25°C	
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 : Rated: 650V/46A	AC ON/OFF I/P: High-Line +3V =308V VDS: 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. (8) Peak Load Ta:25°C	Q1 VDS: (1) 567V (2) 567V (3) 567V (4) 567V (5) 567V (6) 567V (7) 567V (8) 567V
3	P.F.C DIODE	D5 : Rated: 60A/650V	I/P: High-Line +3V =308 V AC ON/OFF O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (4) Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (5) Peak Load Ta:25°C	(1) 503V (2) 499V (3) 499V (4) 499V (5) 499V
4	Diode Peak Voltage	Q100 / Q104: Rated: 120V/100A	AC ON/OFF I/P: High-Line +3V =308 V <u>VO=Vomax</u> 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. (8).NO LOAD (9) Peak Load <u>VO=Vnormal</u> O/P: (1) Full Load Ta:25°C	Q100: <u>VO=Vomax</u> Q104: <u>VO=Vomax</u> VDS: VDS: (1) 98.6V (1) 95.4V (2) 97.0V (2) 95.4V (3) 98.6V (3) 96.2V (4) 97.8V (4) 95.4V (5) 97.8V (5) 95.4V (6) 100.2V (6) 98.6V (7) 94.6V (7) 102.6V (8) 96.2V (8) 96.2V (9) 100.2V (9) 97.8V <u>VO=Vnormal</u> <u>VO=Vnormal</u> (1) 84.1V 82.5V
5	Input Capacitor Voltage	C5 : Rated: 120μ /450V	I/P: High-Line +3V =308V O/P: (1)Full Load input on/off	(1) 434V (2) 438V

			(2) Min load input on /Off (3) Full Load /Min load Change (4) Full load continue (5) Peak Load on/off (6) Peak Load continue Ta:25°C	(3) 438V (4) 434V (5) 438V (6) 438V	
6	Control IC Voltage Test	PWM IC U1 : Rated : 12.5V~ 27.9V PFC IC U2: Rated: 12.9V~25V IC U9: Rated: 3.1V~17V O/P IC U101: Rated: 4.75V~38V IC U103: Rated : 3~30 V IC U104 : Rated : 3V ~30V AUX IC U7 : Rated : 8V~26.5V	AC ON/OFF I/P: High-Line +3V =308V O/P: (1) Full Load (2) Output Short (3) O.L.P (4) O.V.P. (5) No Load VR min (Low Line) Ta:25°C	U1 (1) 14.9V (2) 15.0V (3) 14.9V (4) 14.7V (5) 14.6V U2 (1) 14.3V (2) 13.9V (3) 13.9V (4) 13.8V (5) 13.9V U9 (1) 14.4V (2) 14.4V (3) 13.9V (4) 13.9V (5) 13.9V	U101/U103/U104 (1) 11.3V (2) 12.0V (3) 11.3V (4) 11.2V (5) 11.3V U7 (1) 19.3V (2) 19.5V (3) 19.5V (4) 19.1V (5) 19.5V

■ 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 K VAC/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: 2.23 mA I/P-FG: 2.86 mA O/P-FG: 1.75 mA NO DAMAGE
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: 600 VDC I/P-FG: 600 VDC O/P-FG: 600 VDC Ta:25°C	I/P-O/P: 50.00 GΩ I/P-FG: 22.425 GΩ O/P-FG: 13.373 GΩ 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	BS EN/EN61000-3-2 (IEC61000-3-2) ■ CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	■ PASS
2	CONDUCTION	BS EN/EN55032(CISPR32), CNS 15936 CLASS B BS EN/EN55011 (CISPR11) CLASS B	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 CLASS B BS EN/EN55011 (CISPR11) CLASS B	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
4	E.S.D	BS EN/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	BS EN/EN61000-4-4 INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	BS EN/EN 61000-4-5 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-750-24 1. ROOM AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=26.8°C 2. HIGH AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta= 60.1°C <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta=26.8°C</th><th>HIGH AMBIENT Ta=60.1°C</th></tr><tr><td>1</td><td>ZNR1</td><td>31.0°C</td><td>64.8°C</td></tr><tr><td>2</td><td>LF1</td><td>35.3°C</td><td>69.6°C</td></tr><tr><td>3</td><td>LF2</td><td>36.1°C</td><td>70.3°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta=26.8°C	HIGH AMBIENT Ta=60.1°C	1	ZNR1	31.0°C	64.8°C	2	LF1	35.3°C	69.6°C	3	LF2	36.1°C	70.3°C
NO	Position	ROOM AMBIENT Ta=26.8°C	HIGH AMBIENT Ta=60.1°C																	
1	ZNR1	31.0°C	64.8°C																	
2	LF1	35.3°C	69.6°C																	
3	LF2	36.1°C	70.3°C																	

NO	Position	ROOM AMBIENT Ta=26.8℃	HIGH AMBIENT Ta=60.1℃
4	C2	33.2℃	67.1℃
5	BD1	55.4℃	88.0℃
6	C16	38.4℃	72.2℃
7	RTH1	36.1℃	69.5℃
8	RY1	39.4℃	72.6℃
9	RTH4	45.5℃	79.0℃
10	L1	50.5℃	84.0℃
11	Q1	45.9℃	79.6℃
12	D5	44.4℃	78.2℃
13	C5	35.4℃	69.0℃
14	ZNR1	31.0℃	64.8℃
15	LF1	35.3℃	69.6℃
16	LF2	36.1℃	70.3℃
17	C2	33.2℃	67.1℃
18	BD1	55.4℃	88.0℃
19	C16	38.4℃	72.2℃
20	RTH1	36.1℃	69.5℃
21	RY1	39.4℃	72.6℃
22	RTH4	45.5℃	79.0℃
23	L1	50.5℃	84.0℃
24	Q1	45.9℃	79.6℃
25	D5	44.4℃	78.2℃
26	C5	35.4℃	69.0℃
27	D6	41.7℃	75.6℃
28	U1	47.3℃	82.0℃
29	C7	43.4℃	77.7℃
30	Q3	46.7℃	81.9℃
31	Q2	49.2℃	84.4℃
32	Q4	53.5℃	88.2℃
33	C42	43.2℃	76.6℃
34	T1core	56.4℃	87.0℃
35	T1coil	93.4℃	98.0℃
36	C108	43.5℃	79.0℃
37	U9	49.1℃	82.7℃
38	U2	47.2℃	81.7℃
39	R7	47.9℃	81.5℃
40	C92	48.0℃	82.3℃
41	U5	48.1℃	81.8℃
42	U101	53.5℃	87.6℃
43	Q100	54.2℃	88.8℃
44	Q104	56.2℃	91.1℃
45	J101	47.6℃	80.7℃
46	D13	40.2℃	73.9℃

			NO	Position	ROOM AMBIENT Ta=26.8℃	HIGH AMBIENT Ta=60.1℃
			47	U104	35.9℃	69.1℃
			48	RTH5	54.9℃	89.1℃
			49	C107	45.5℃	80.7℃
			50	C110	43.2℃	76.5℃
			51	C135	38.5℃	70.7℃
			52	U100	45.4℃	80.9℃
			53	U7	41.4℃	75.2℃
			54	RTH3	39.0℃	73.3℃
			55	T2	40.4℃	74.4℃
			56	C158	33.1℃	67.1℃
			57	C201	39.3℃	74.1℃
			58	U111	39.6℃	73.7℃
			59	Q5	41.9℃	75.9℃
			60	U100	42.3℃	76.2℃
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 114%LOAD Ta : 25℃	TEST : OK		
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 305VAC/100VAC O/P : 80%/100%LOAD Ta= -45℃/-35℃	TEST : OK		
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 60℃/95 %R.H NO DAMAGE	I/P : 315VAC O/P : FULL LOAD Ta= 60℃ HUMIDITY= 95 %R.H	TEST : OK		
5	TEMPERATURE COEFFICIENT	± 0.05%/℃(0~60℃)	I/P : 230 VAC O/P : FULL LOAD	± 0.005%/℃(0~60℃)		
6	STORAGE TEMPERATURE TEST	-40~85℃	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 : 10 CYCLE 5. Input/Output condition : STATIC			
7	THERMAL SHOCK TEST	-30~60℃	1. Thermal shock Temperature : -35℃~ +65℃ 2. Temperature change rate : 25℃ / 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℃			



9	CAPACITOR LIFE CYCLE	SUPPOSE C107 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta= 60°C LIFE TIME (1) 937548HRS (2) I/P : 230VAC O/P : FULL LOAD Ta= 60°C LIFE TIME (2) 72642HRS (3) I/P : 230VAC O/P : 75% LOAD Ta= 60°C LIFE TIME (3) 125350HRS (4) I/P : 230VAC O/P : 50% LOAD Ta= 60°C LIFE TIME (4) 189547HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 1047.1K hrs min. Telcordia SR-332 (Bellcore) ; 137.4K 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	Yuwei	Liutt	Wangzd

2020.10.1 TAG-QA-009