



Test Report: HRPG-1000N3-12

1000W Ultra-High Peak 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

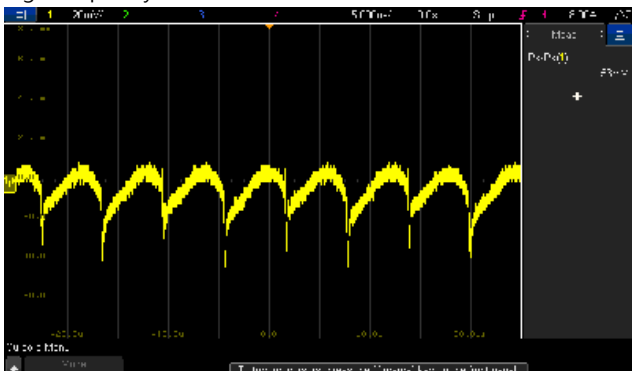
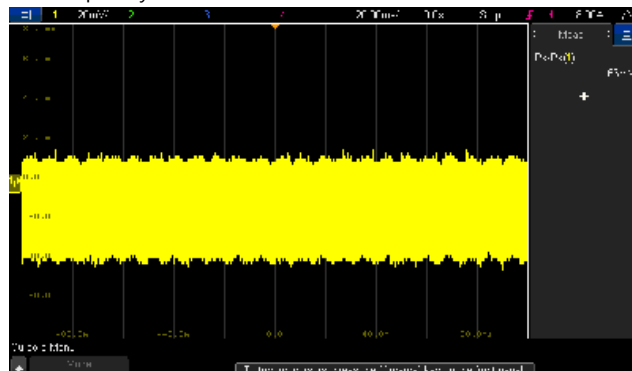
E.M.C. Test

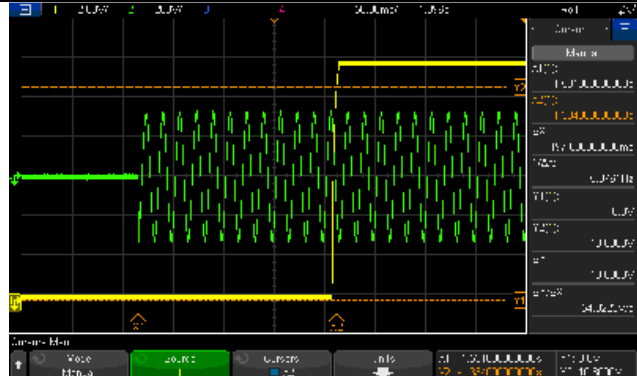
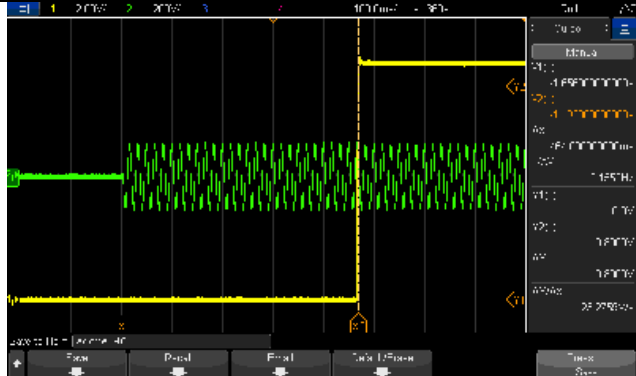
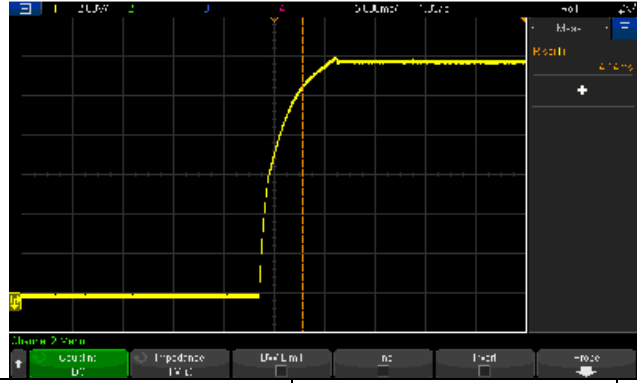
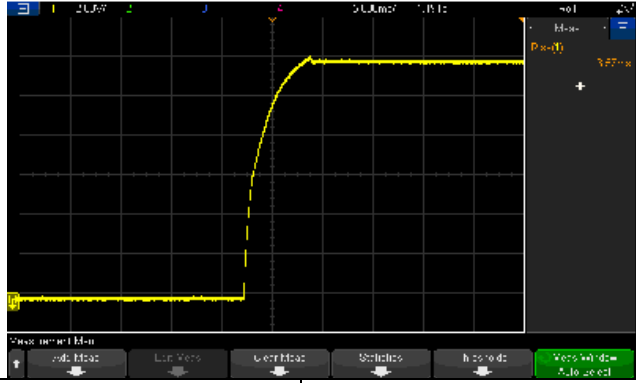
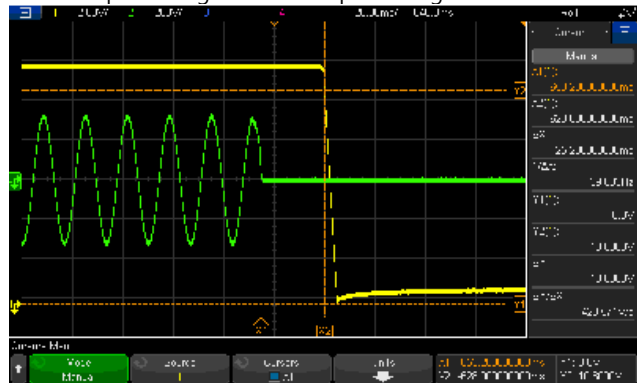
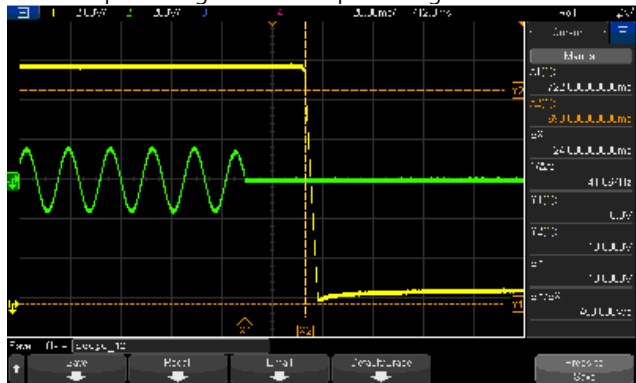
■ RELIABILITY TEST

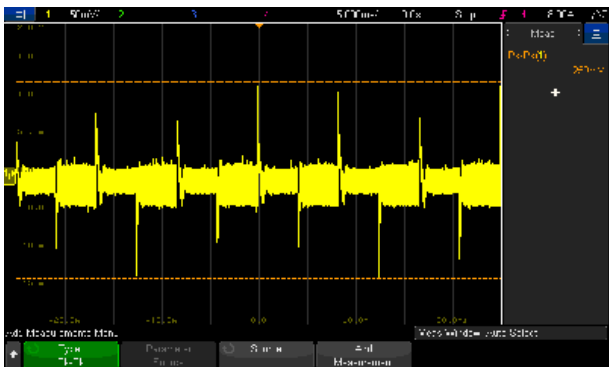
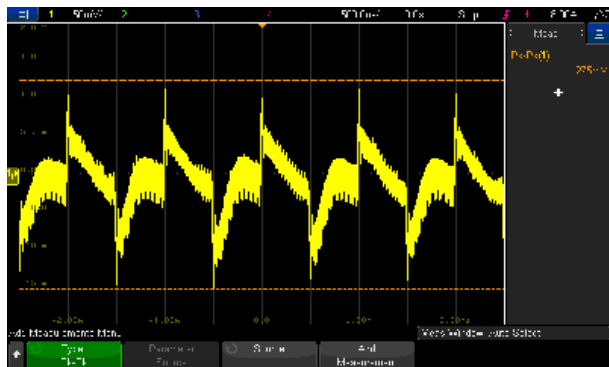
ENVIRONMENT TEST

DESIGN VERIFY TEST

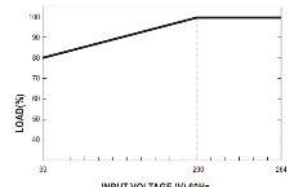
OUTPUT FUNCTION TEST

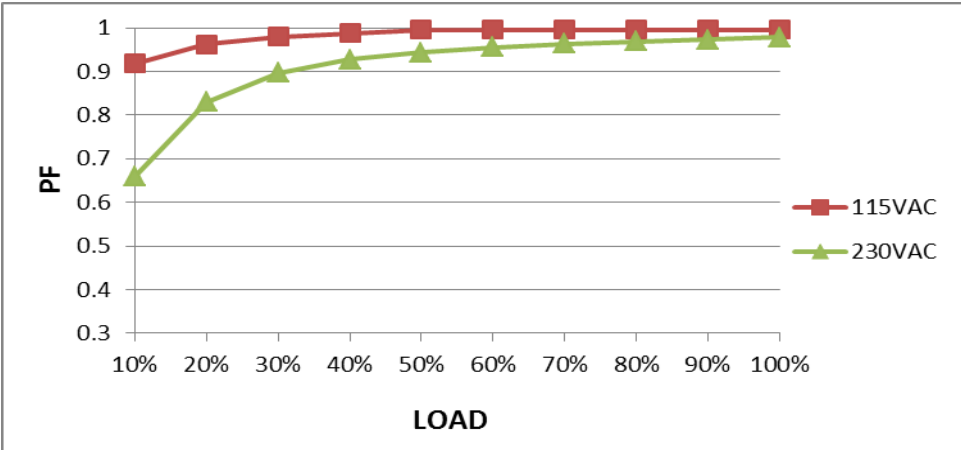
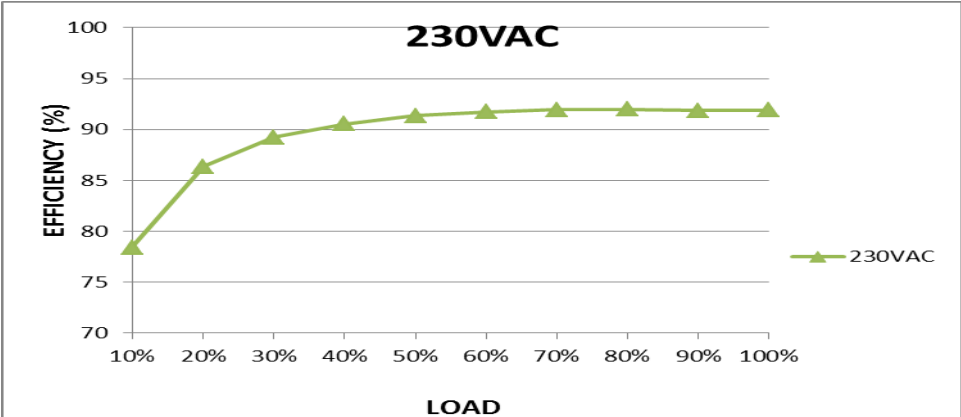
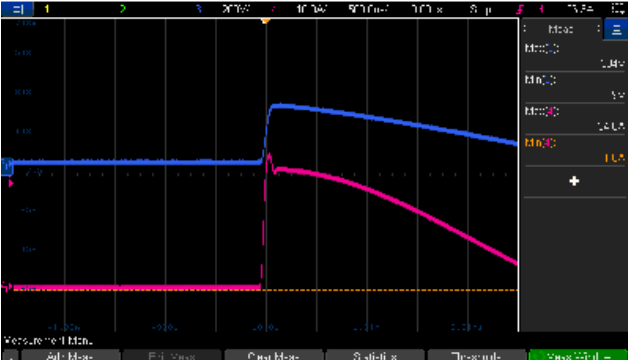
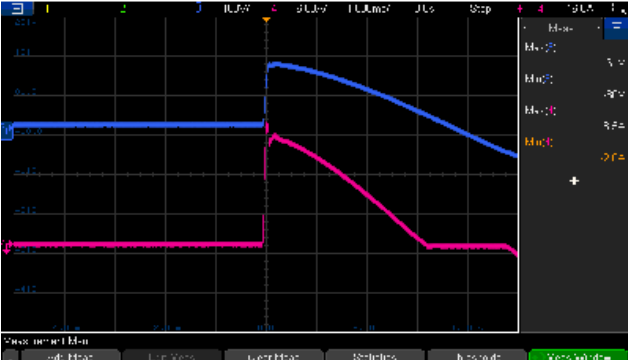
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 11 V~ 14 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	10.61V~14.47V/230VAC 10.60V~14.47V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -2.0%~ 2.0 %	I/P: 90VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: -0.03 %~ 0.12 %
3	LINE REGULATION	V1: -0.5%~ 0.5 %	I/P: 90VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: 0%~0.01 %
4	LOAD REGULATION	V1: -2.0%~ 2.0 %	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.03 %~ 0.12 %
5	OVER/UNDERSHOOT TEST	<± 5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	-4.1%
6	RIPPLE & NOISE (Max)	V1: 150mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1: 53mVp-p / high frequency 66mVp-p / low frequency
high frequency :  low frequency : 				
7	SET UP TIME(Max)	230VAC/1000ms 115VAC/2000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 197 ms 115VAC/ 464 ms
INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage			INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage	

				
8	RISE TIME (Max)	230VAC/50ms 115VAC/50ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 4.14 ms 115VAC/ 3.57 ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage 		INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage 	
9	HOLD UP TIME (Typ.)	230VAC/16ms 115VAC/16ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 25.2ms 115VAC/ 24.0ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage 		INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage 	
10	DYNAMIC LOAD	V1: 1200mVp-p	I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C	259mVp-p 275mVp-p

	FULL /50% LOAD 50%DUTY / 120HZ		FULL /50% LOAD 50%DUTY / 1KHZ	
				
11	TRANSIENT RECOVERY TIME	V1: 1200mVp-p <500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	221mVp-p
12	PEAK LOAD	PEAK LOAD@5S	I/P: 264VAC I/P: 200VAC I/P: 100VAC O/P: PEAK LOAD	TEST : I/P: 264VAC OK I/P: 200VAC OK I/P: 100VAC OK

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~264VAC (300VAC for 5 sec.) 127VDC~ 370VDC 	(1) I/P:TESTING O/P:FULL 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 +15%=300 V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	(1) 83.5V~264V/ FULL LOAD 75.2V~264V/ 80% LOAD (2) 118.5Vdc~370Vdc/FULL LOAD 117.7Vdc~370Vdc/80% LOAD (3) 118.0Vdc~370Vdc/FULL LOAD 117.7Vdc~370Vdc/80% LOAD TEST:OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:90 VAC ~264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK
3	INPUT CURRENT (Typ.)	230V/ 5 A 115V/ 8.5 A	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =4.74A/ 230VAC I =8.11A/ 115VAC
4	LEAKAGE CURRENT	< 1.2mA / 240 VAC	I/P : 240 VAC O/P : Min LOAD Ta : 25°C	0.703mA
5	NO LOAD CONSUMPTION	<0.85W @ RC OFF	I/P : 230VAC O/P : NO LOAD Ta : 25°C	0.651W/ 230VAC

6	POWER FACTOR (Typ.)	0.95/ 230VAC 0.99/115VAC	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.975/230VAC PF=0.997/115VAC
	P.F vs LOAD 			
7	EFFICIENCY(Typ.)	91.5%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	91.9%
	EFFICIENCY vs LOAD 			
8	INRUSH CURRENT(Typ.)	230V/40A 115V/25A COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =34.0A/ 230VAC I =18.5A/ 115VAC T50= 1680us/230V
	INPUT=230VAC/50HZ @ FULL LOAD CH3 : AC Input Voltage CH4 : Input current 		INPUT=115VAC/ 60HZ @ FULL LOAD CH3 : AC Input Voltage CH4 : Input current 	

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	Output power >105% rated for more than 5 seconds then shut down o/p voltage, re-power on to recover ; output power >320% rated then shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 200VAC O/P: TESTING Ta: 25°C	>105%: 115%/ 264VAC 114.88%/ 230VAC 114.88%/200VAC >320% : 310%/ 264VAC 310%/ 230VAC 310%/200VAC PROTECTION TYPE : Output power >105% rated for more than 5 seconds then shut down o/p voltage, re-power on to recover ; output power >320% rated then shut down o/p voltage, re-power on to recover
2	OVER VOLTAGE PROTECTION	14.5V~16.5V Protection type : Shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 90VAC O/P: MIN LOAD Ta: 25°C	15.54V/ 264VAC 15.54V/ 90VAC PROTECTION TYPE : Shut down o/p voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	Protection type : Shut down o/p voltage, recovers automatically after temperature goes down	I/P: 264VAC I/P: 90VAC O/P: FULL LOAD	O.T.P. Active Protection type : Shut down o/p voltage, recovers automatically after temperature goes down
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264VAC I/P: 90VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE PROTECTION TYPE : Shut down o/p voltage, re-power on to recover

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT		
1	REMOTE ON/OFF CONTROL	Power ON : short; Power OFF : open.	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: OK		
2	REMOTE SENSE	S+ / S- The remote sensing compensates voltage drop on the load wiring up to 0.5V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: OK		
3	DC-OK SIGNAL	The TTL signal out, PSU turn on = 3.3 ~ 5.6V ; PSU turn off = 0 ~ 1V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	PSU turn on = 4.77 V ; PSU turn off = 0.09 V		
4	5V STANDBY	5VSB : 5V@0.3A ; tolerance ±5%, ripple : 50mVp-p(max.)	I/P: 230 VAC O/P:TESTING Ta:25°C	TOLERANCE	RIPPLE	
				-0.75%~0.13 %	11mVp-p	
5	FAN ON/OFF CONTROL	Fan on/off by NTC(RT50) or 30% load min	I/P: 230 VAC O/P:TESTING		By NTC	LOAD (%)
				FAN ON	OK	22.5%
6	CURRENT SHARING	Up to 4000W or (3+1) units.	I/P: 230 VAC O/P: (The rated current per unit) x (Number of unit) x 0.9 Ta:25°C	TEST: OK		

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q910 / Q911 Rated : 66 A/ 600 V	AC ON/OFF I/P:High-Line =300V 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	Q910 VDS: (1) 464V (2) 468V (3) 468V (4) 468V (5) 464V (6) 468V (7) 464V (8) 460V	Q911 VDS: (1) 472V (2) 464V (3) 476V (4) 476V (5) 472V (6) 472V (7) 468V (8) 464V

			Ta:25°C	
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated : 73 A/ 600 V	AC ON/OFF I/P:High-Line =267V 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) 480V (2) 460V (3) 476V (4) 480V (5) 476V (6) 476V (7) 464V (8) 480V
3	P.F.C DIODE	D6 Rated : 20 A/ 650 V	I/P:High-Line =300 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) 408V (2) 388V (3) 408V (4) 408V (5) 408V
4	AUX MOS	U971 Rated : 1.8 A/700V	AC ON/OFF I/P:High-Line =300V 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	VDS: (1) 551V (2) 543V (3) 551V (4) 551V (5) 555V (6) 551V (7) 547V (8) 547V
5	Diode Peak Voltage	Q501/Q505 Rated : 130A/ 60 V Q503/Q507	AC ON/OFF I/P:High-Line =300 V Vo=Vmax O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/	Q501: Vo=Vmax VDS: (1) 46.4V (2) 51.4V (3) 46.9V Q503: Vo=Vmax VDS: (1) 48.5V (2) 55.7V (3) 50.9V

		Rated : 215A/ 60 V	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) burst Mode (10) Peak Load Vo=Vnormal O/P: (1)Full Load Ta:25°C	(4) 46.5V (5) 46.5V (6) 48.5V (7) 52.9V (8) 38.9V (9) 41.7V (10) 53.4V Vo=Vnormal (1) 43.2V Q505: Vo=Vmax VDS: (1) 49.9V (2) 51.3V (3) 44.9V (4) 44.9V (5) 44.9V (6) 47.3V (7) 53.8V (8) 38.1V (9) 39.7V (10) 53.4V Vo=Vnormal (1) 42.1V	(4) 50.5V (5) 50.9V (6) 53.1V (7) 56.2V (8) 39.7V (9) 45.7V (10) 49.9V Vo=Vnormal (1) 36.2V Q507: Vo=Vmax VDS: (1) 47.3V (2) 55.1V (3) 46.5V (4) 46.1V (5) 46.1V (6) 51.5V (7) 55.1V (8) 37.7V (9) 42.5V (10) 53.1V Vo=Vnormal (1) 44.1V
6	Input Capacitor Voltage	C5 Rated: 270 μ / 420 V	I/P:High-Line =267V O/P: (1)Full Load input on/off (2) Min load input on /Off (3)Full Load /Min load Change (4)Full load continue (5)Peak Load on/off (300%) (6)Peak Load continue (300%) Ta:25°C	(1)382V (2)390V (3)394V (4)386V (5)406V (6)398V	
7	Control IC Voltage Test	PFC IC U1 Rated 12V~ 25 V PWM IC U900 Rated 8.9 V~ 15.5 V AUX PWM IC U971 Rated 15V~ 32 V	AC ON/OFF I/P:High-Line =300 V O/P(1)FULL LOAD (2) Output Short (3)O.L.P (4)O.V.P. (5)NO LOAD Ta:25°C	U1 (1) 18.5V (2) 18.7V (3) 18.7V (4) 18.5V (5) 14.3V U900 (1) 14.5V (2) 14.5V (3) 14.3V (4) 14.3V (5) 13.3V	U971 (1) 19.1V (2) 19.1V (3) 19.1V (4) 19.1V (5) 17.7V

■ SAFETY& E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3KVAC/min I/P-FG :2KVAC/min O/P-FG:0.5KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG:0.6 KVAC/min Ta:25°C	I/P-O/P:5.5mA I/P-FG:4.67mA O/P-FG:2.81m A 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: 600 VDC I/P-FG: 600 VDC O/P-FG: 600 VDC Ta:25°C	I/P-O/P: 50GΩ I/P-FG: 32911MΩ O/P-FG: 50GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	12 mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	BS EN/ EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	BS EN/ EN55032 (CISPR32) 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) 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 : 8KV / Contact : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
5	E.F.T	BS EN/ EN61000-4-4 INDUSTRY INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	BS EN/ EN61000-4-5 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 : HRP-1000N3-12 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 28.3 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 53.9 °C <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 28.3 °C</th><th>HIGH AMBIENT Ta= 53.9 °C</th></tr><tr><td>1</td><td>ZNR1</td><td>35.1°C</td><td>61°C</td></tr><tr><td>2</td><td>C1</td><td>42.1°C</td><td>69.2°C</td></tr><tr><td>3</td><td>LF1</td><td>43.6°C</td><td>71.2°C</td></tr><tr><td>4</td><td>LF2</td><td>45.4°C</td><td>71.9°C</td></tr><tr><td>5</td><td>RTH3</td><td>44.2°C</td><td>69.8°C</td></tr><tr><td>6</td><td>C11</td><td>48.3°C</td><td>74°C</td></tr><tr><td>7</td><td>BD1</td><td>52°C</td><td>77.1°C</td></tr><tr><td>8</td><td>TSW4</td><td>39.8°C</td><td>65.5°C</td></tr><tr><td>9</td><td>L1</td><td>65.2°C</td><td>90.1°C</td></tr><tr><td>10</td><td>L900</td><td>59.7°C</td><td>85.6°C</td></tr><tr><td>11</td><td>Q910</td><td>65.7°C</td><td>94.4°C</td></tr><tr><td>12</td><td>Q911</td><td>62.7°C</td><td>90.8°C</td></tr><tr><td>13</td><td>C946</td><td>43.7°C</td><td>69.3°C</td></tr><tr><td>14</td><td>D935</td><td>40.9°C</td><td>66.6°C</td></tr><tr><td>15</td><td>C6</td><td>46.4°C</td><td>71.4°C</td></tr><tr><td>16</td><td>Q1</td><td>48.8°C</td><td>74.2°C</td></tr><tr><td>17</td><td>Q2</td><td>41.5°C</td><td>67.1°C</td></tr><tr><td>18</td><td>D6</td><td>46.9°C</td><td>72.5°C</td></tr><tr><td>19</td><td>T2coil</td><td>71.7°C</td><td>98.1°C</td></tr><tr><td>20</td><td>T2core</td><td>50.1°C</td><td>76.4°C</td></tr><tr><td>21</td><td>T1coil</td><td>73.2°C</td><td>99.7°C</td></tr><tr><td>22</td><td>T1core</td><td>51.6°C</td><td>78°C</td></tr><tr><td>23</td><td>Q508</td><td>49.6°C</td><td>75°C</td></tr><tr><td>24</td><td>Q516</td><td>64.4°C</td><td>90.1°C</td></tr><tr><td>25</td><td>Q504</td><td>53.6°C</td><td>78.6°C</td></tr><tr><td>26</td><td>Q514</td><td>58.5°C</td><td>85°C</td></tr><tr><td>27</td><td>R567</td><td>61.6°C</td><td>87.2°C</td></tr><tr><td>28</td><td>RT50</td><td>49.1°C</td><td>74.8°C</td></tr><tr><td>29</td><td>U503</td><td>53.7°C</td><td>78.8°C</td></tr><tr><td>30</td><td>U501</td><td>54.5°C</td><td>81.3°C</td></tr><tr><td>31</td><td>TSW3</td><td>39.9°C</td><td>65.6°C</td></tr><tr><td>32</td><td>C109</td><td>42.1°C</td><td>67.6°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta= 28.3 °C	HIGH AMBIENT Ta= 53.9 °C	1	ZNR1	35.1°C	61°C	2	C1	42.1°C	69.2°C	3	LF1	43.6°C	71.2°C	4	LF2	45.4°C	71.9°C	5	RTH3	44.2°C	69.8°C	6	C11	48.3°C	74°C	7	BD1	52°C	77.1°C	8	TSW4	39.8°C	65.5°C	9	L1	65.2°C	90.1°C	10	L900	59.7°C	85.6°C	11	Q910	65.7°C	94.4°C	12	Q911	62.7°C	90.8°C	13	C946	43.7°C	69.3°C	14	D935	40.9°C	66.6°C	15	C6	46.4°C	71.4°C	16	Q1	48.8°C	74.2°C	17	Q2	41.5°C	67.1°C	18	D6	46.9°C	72.5°C	19	T2coil	71.7°C	98.1°C	20	T2core	50.1°C	76.4°C	21	T1coil	73.2°C	99.7°C	22	T1core	51.6°C	78°C	23	Q508	49.6°C	75°C	24	Q516	64.4°C	90.1°C	25	Q504	53.6°C	78.6°C	26	Q514	58.5°C	85°C	27	R567	61.6°C	87.2°C	28	RT50	49.1°C	74.8°C	29	U503	53.7°C	78.8°C	30	U501	54.5°C	81.3°C	31	TSW3	39.9°C	65.6°C	32	C109	42.1°C	67.6°C
NO	Position	ROOM AMBIENT Ta= 28.3 °C	HIGH AMBIENT Ta= 53.9 °C																																																																																																																																					
1	ZNR1	35.1°C	61°C																																																																																																																																					
2	C1	42.1°C	69.2°C																																																																																																																																					
3	LF1	43.6°C	71.2°C																																																																																																																																					
4	LF2	45.4°C	71.9°C																																																																																																																																					
5	RTH3	44.2°C	69.8°C																																																																																																																																					
6	C11	48.3°C	74°C																																																																																																																																					
7	BD1	52°C	77.1°C																																																																																																																																					
8	TSW4	39.8°C	65.5°C																																																																																																																																					
9	L1	65.2°C	90.1°C																																																																																																																																					
10	L900	59.7°C	85.6°C																																																																																																																																					
11	Q910	65.7°C	94.4°C																																																																																																																																					
12	Q911	62.7°C	90.8°C																																																																																																																																					
13	C946	43.7°C	69.3°C																																																																																																																																					
14	D935	40.9°C	66.6°C																																																																																																																																					
15	C6	46.4°C	71.4°C																																																																																																																																					
16	Q1	48.8°C	74.2°C																																																																																																																																					
17	Q2	41.5°C	67.1°C																																																																																																																																					
18	D6	46.9°C	72.5°C																																																																																																																																					
19	T2coil	71.7°C	98.1°C																																																																																																																																					
20	T2core	50.1°C	76.4°C																																																																																																																																					
21	T1coil	73.2°C	99.7°C																																																																																																																																					
22	T1core	51.6°C	78°C																																																																																																																																					
23	Q508	49.6°C	75°C																																																																																																																																					
24	Q516	64.4°C	90.1°C																																																																																																																																					
25	Q504	53.6°C	78.6°C																																																																																																																																					
26	Q514	58.5°C	85°C																																																																																																																																					
27	R567	61.6°C	87.2°C																																																																																																																																					
28	RT50	49.1°C	74.8°C																																																																																																																																					
29	U503	53.7°C	78.8°C																																																																																																																																					
30	U501	54.5°C	81.3°C																																																																																																																																					
31	TSW3	39.9°C	65.6°C																																																																																																																																					
32	C109	42.1°C	67.6°C																																																																																																																																					

		<table><tr><td>33</td><td>C107</td><td>45.3℃</td><td>70.7℃</td></tr><tr><td>34</td><td>C106</td><td>45℃</td><td>70.4℃</td></tr><tr><td>35</td><td>C115</td><td>38.1℃</td><td>63.3℃</td></tr><tr><td>36</td><td>U202</td><td>30.7℃</td><td>56℃</td></tr><tr><td>37</td><td>RG2</td><td>41.3℃</td><td>68℃</td></tr><tr><td>38</td><td>U900</td><td>36.4℃</td><td>61.7℃</td></tr><tr><td>39</td><td>U971</td><td>49.3℃</td><td>74.8℃</td></tr><tr><td>40</td><td>U903</td><td>31.9℃</td><td>56.9℃</td></tr><tr><td>41</td><td>T951</td><td>52℃</td><td>77.2℃</td></tr><tr><td>42</td><td>R977</td><td>67.6℃</td><td>94.6℃</td></tr><tr><td>43</td><td>D431</td><td>46.2℃</td><td>71.4℃</td></tr><tr><td>44</td><td>D8</td><td>48℃</td><td>73.3℃</td></tr><tr><td>45</td><td>Q914</td><td>51.7℃</td><td>77.7℃</td></tr><tr><td>46</td><td>J101</td><td>48.2℃</td><td>74.2℃</td></tr><tr><td>47</td><td>D230</td><td>52.9℃</td><td>78.8℃</td></tr><tr><td>48</td><td>U1</td><td>52.8℃</td><td>77.1℃</td></tr><tr><td>49</td><td>R6</td><td>53℃</td><td>79.6℃</td></tr></table>				33	C107	45.3℃	70.7℃	34	C106	45℃	70.4℃	35	C115	38.1℃	63.3℃	36	U202	30.7℃	56℃	37	RG2	41.3℃	68℃	38	U900	36.4℃	61.7℃	39	U971	49.3℃	74.8℃	40	U903	31.9℃	56.9℃	41	T951	52℃	77.2℃	42	R977	67.6℃	94.6℃	43	D431	46.2℃	71.4℃	44	D8	48℃	73.3℃	45	Q914	51.7℃	77.7℃	46	J101	48.2℃	74.2℃	47	D230	52.9℃	78.8℃	48	U1	52.8℃	77.1℃	49	R6	53℃	79.6℃
33	C107	45.3℃	70.7℃																																																																						
34	C106	45℃	70.4℃																																																																						
35	C115	38.1℃	63.3℃																																																																						
36	U202	30.7℃	56℃																																																																						
37	RG2	41.3℃	68℃																																																																						
38	U900	36.4℃	61.7℃																																																																						
39	U971	49.3℃	74.8℃																																																																						
40	U903	31.9℃	56.9℃																																																																						
41	T951	52℃	77.2℃																																																																						
42	R977	67.6℃	94.6℃																																																																						
43	D431	46.2℃	71.4℃																																																																						
44	D8	48℃	73.3℃																																																																						
45	Q914	51.7℃	77.7℃																																																																						
46	J101	48.2℃	74.2℃																																																																						
47	D230	52.9℃	78.8℃																																																																						
48	U1	52.8℃	77.1℃																																																																						
49	R6	53℃	79.6℃																																																																						
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 108%LOAD Ta : 25℃	TEST : OK																																																																					
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/200VAC O/P : 100 %LOAD Ta= -45℃	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 : 272 VAC O/P : FULL LOAD Ta= 49.2 °C HUMIDITY= 95 %R.H	TEST : OK																																																																					
5	TEMPERATURE COEFFICIENT	± 0.03%/°C(0~50°C)	I/P : 230 VAC O/P : FULL LOAD	0.002%/°C(0~50°C)																																																																					
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	-40~50℃	1. Thermal shock Temperature : -45℃~ +55℃ 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, 5G 10min./1cycle, 60min. 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
9	CAPACITOR LIFE CYCLE	SUPPOSE C107 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= 50 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 50 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 50 °C LIFE TIME	(1) 860315HRS (2) 154206.7HRS (3) 275257.5HRS (4) 399046.9HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 989.2K hrs min. Telcordia SR-332 (Bellcore) ; 130.6K 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 : 50000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Yuwei	Liutt	Wangdz

2020.10.1 TAG-QA-009